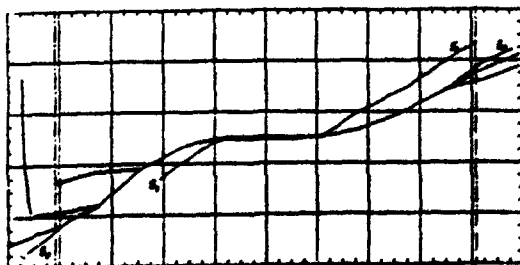
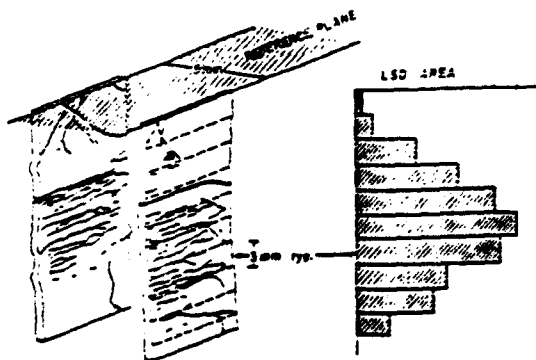
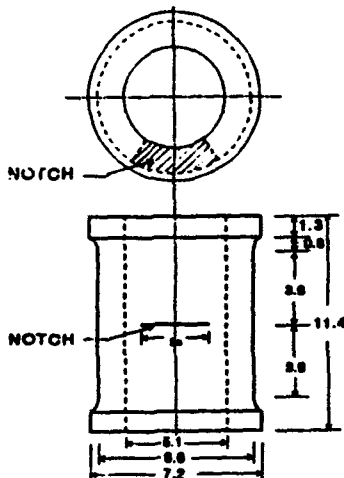


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2

APPENDIX  
TO  
CRACK PROPAGATION AND FABRIC  
CONTROL ON THE STATIC AND DYNAMIC  
STRENGTH OF COHESIVE SOILS

DTIC  
ELECTE  
by S C D  
MAY 19 1992

Adel S. Saada and Gary F. Bianchini

January, 1992

92-12943

Air Force Office of Scientific Research  
Bolling Air Force Base  
D.C. 20332-6448

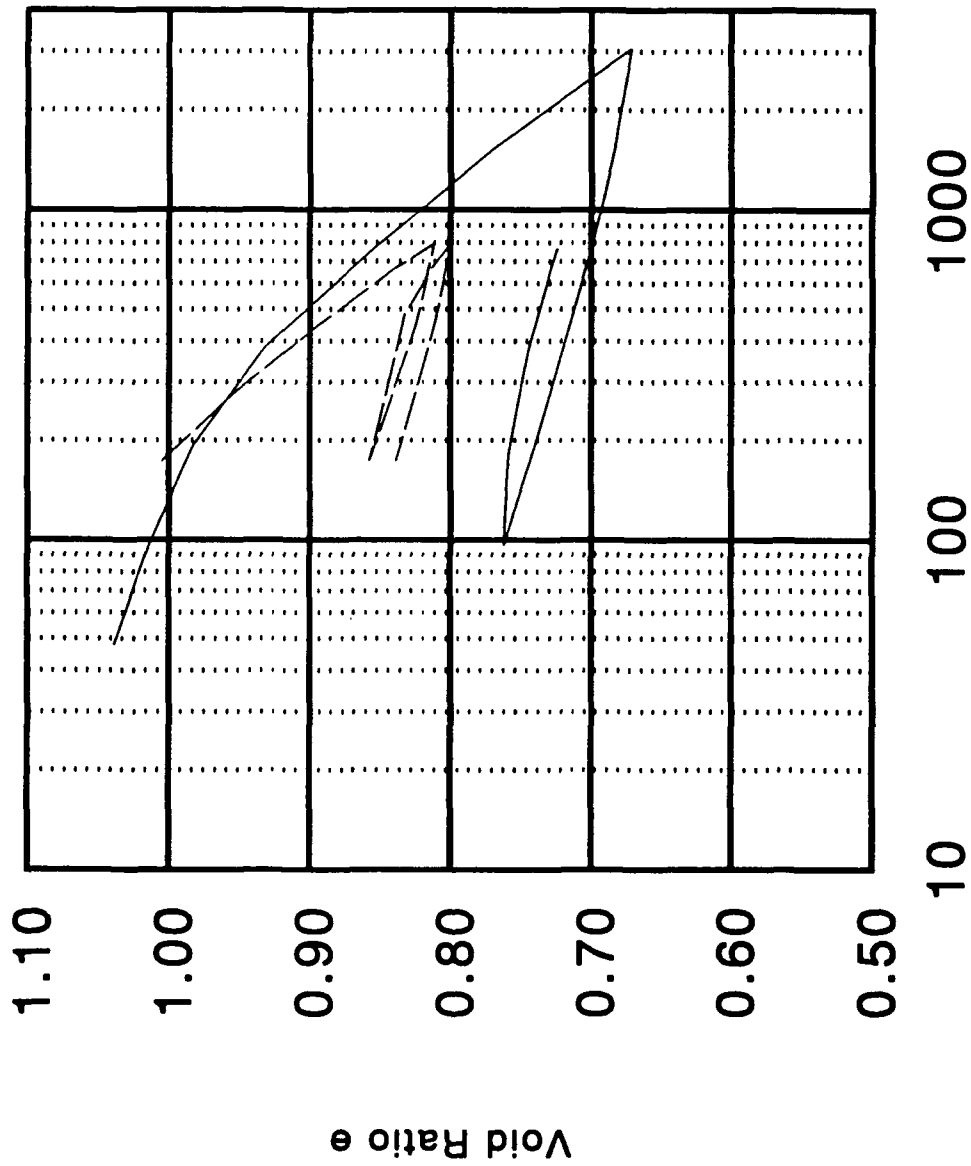
Grant No. AFOSR-88-0169

GEOTECHNICAL ENGINEERING LABORATORIES  
CASE SCHOOL OF ENGINEERING  
Case Western Reserve University

92 5 14 054

**APPENDIX I**  
**CONSOLIDATION TESTS**

# Compressibility of EPK



Acquisition For	
By	Special
Dist	Special
Availability Codes	
Dist	Special

A-1



**APPENDIX II**  
**RESONANT COLUMN TEST**

TABLE A.1 LISTS OF RESONANT COLUMN TEST

DESIGNATION	ECP	CONSOLIDATION	SHAPE	NOTCH
#Test 92	242 kPa	$K_0$ -NC	Uniform	No
#Test 91	345 kPa	$K_0$ -NC	Uniform	No
#Test 93	552 kPa	$K_0$ -NC	Uniform	No
#Test 94	OCR=4	$K_0$ -OC	Uniform	No
#Test 02	OCR=4	$K_0$ -OC	Trim	No
#Test 05	OCR=4	$K_0$ -OC	Trim	Yes
#Test 12	OCR=3	Isotropic	Trim	Yes

Notice:

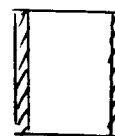
For all  $K_0$  overconsolidated clays the same remarks made in Chapter 2 hold, namely:

1. The cell pressure during  $K_0$  consolidation was 620 kPa resulting in a vertical stress of 1240 kPa. The rebound was such that the excess vertical stress was removed and the cell pressure reduced by a factor of 3. This operation leads to an overconsolidation ratio of 4 when reference is made to the mean effective stress.

2. For isotropic specimens consolidation and rebound were spherical in nature. The specimen was hydrostatically consolidated under 620 kPa and rebounded to 207 kPa.

A) Test Identification

- 1) Test ID : #test92 EPK-35
- 2) Operator: Liang
- 3) Date : 08/27/91
- 4) Test Seq: cp = 60-25psi



242 hPa

B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.769 cm               |
| 2) Reduce Length         | 12.213 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 7.112 cm                |
| 2) Effect Area           | 19.458 cm <sup>2</sup>  |
| 2) Total Volume          | 248.446 cm <sup>3</sup> |
| 2) Reduced Volume        | 237.628 cm <sup>3</sup> |
| 2) Total Weight          | 472.500 gm              |
| 2) Reduced Weight        | 451.925 gm              |
| 2) Water Content         | 42.970 %                |
| 2) Weight of Solid       | 330.489 gm              |
| 2) Weight of Water       | 142.011 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 7.401 gm                      |
| 4) Corrected J                    | 44.272 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1803.90 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .645 cm                 |
| 2) Change in Volume | 12.900 cm <sup>3</sup>  |
| 3) New Length       | 11.568 cm               |
| 4) New Area         | 19.429 cm <sup>2</sup>  |
| 5) New Volume       | 224.728 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.040 cm                |
| 2) Change in Volume | -.200 cm <sup>3</sup>   |
| 3) New Length       | 11.608 cm               |
| 4) New Area         | 19.379 cm <sup>2</sup>  |
| 5) New Volume       | 224.928 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.535 cm |
| 2) Outer Radius | 3.549 cm |
| 3) Mean Radius  | 3.070 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 39.135 %                                    |
| 2) Effective Sample Weight | 439.251 gm                                  |
| 3) Mass                    | .448 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00199 gm-sec <sup>2</sup> /cm <sup>4</sup> |

#### H) Torsion Paramters

1) Jsoil	4.260 gm-cm-sec2
2) Jsoil/Jcap	.0962
3) bs	.305
4) Shear Modulus	113.646*(fn2) gm/cm2
5) Shear Modulus	11.1350*(fn2) psi
6) Shear Strain	11.7060*(Res/fn2)
7) Torque Magnet Constant	.1202

#### I) Longitudinal Paramters

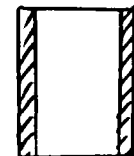
1) Wsoil/Wcap	.2435
2) bc	.474
3) Axial Modulus	47.088*(fn2) gm/cm2
4) Axial Modulus	4.6137*(fn2) psi
5) Axial Strain	12.1009*(Res/fn2)
6) Axial Magnet Constant	.1160

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.009	260.6	313316.	1.000	2.984	2.571	.992E-08
100.	.018	260.3	312595.	.998	2.947	2.536	.402E-07
200.	.036	259.5	310676.	.992	2.886	2.476	.165E-06
400.	.074	258.1	307333.	.981	2.864	2.444	.674E-06
700.	.128	255.7	301644.	.963	2.938	2.484	.205E-05
1000.	.187	253.1	295541.	.943	2.935	2.456	.427E-05
1500.	.304	250.9	290426.	.927	2.748	2.279	.105E-04
2000.	.423	249.1	286274.	.914	2.673	2.201	.194E-04
3000.	.660	246.4	280101.	.894	2.628	2.141	.453E-04
4000.	.855	242.9	272200.	.869	2.782	2.234	.783E-04

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.061	92.2	94653.	1.000	3.376	.058	.396E-08
100.	.123	91.8	93834.	.991	3.380	.058	.160E-07
200.	.250	91.2	92611.	.978	3.386	.057	.646E-07
400.	.477	90.4	90993.	.961	3.610	.061	.247E-06
700.	.841	88.3	86815.	.917	3.756	.062	.760E-06
1000.	1.299	86.9	84084.	.888	3.586	.058	.168E-05
1500.	1.968	84.9	80258.	.848	3.719	.059	.382E-05
2000.	2.603	82.4	75601.	.799	3.980	.061	.673E-05
3000.	3.770	78.8	69139.	.730	4.508	.066	.146E-04
4000.	4.846	74.7	62132.	.656	5.203	.072	.250E-04

A) Test Identification

- 1) Test ID : #test91 EPK-50
- 2) Operator: Liang
- 3) Date : 08/20/91
- 4) Test Seq: cp = 70-20psi



345 kPa

B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.738 cm               |
| 2) Reduce Length         | 12.182 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 7.112 cm                |
| 2) Effect Area           | 19.458 cm <sup>2</sup>  |
| 2) Total Volume          | 247.851 cm <sup>3</sup> |
| 2) Reduced Volume        | 237.032 cm <sup>3</sup> |
| 2) Total Weight          | 474.000 gm              |
| 2) Reduced Weight        | 453.310 gm              |
| 2) Water Content         | 43.230 %                |
| 2) Weight of Solid       | 330.936 gm              |
| 2) Weight of Water       | 143.064 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 7.442 gm                      |
| 4) Corrected J                    | 44.272 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1803.94 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .856 cm                 |
| 2) Change in Volume | 16.100 cm <sup>3</sup>  |
| 3) New Length       | 11.326 cm               |
| 4) New Area         | 19.503 cm <sup>2</sup>  |
| 5) New Volume       | 220.932 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.125 cm                |
| 2) Change in Volume | 1.120 cm <sup>3</sup>   |
| 3) New Length       | 11.451 cm               |
| 4) New Area         | 19.189 cm <sup>2</sup>  |
| 5) New Volume       | 219.812 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.522 cm |
| 2) Outer Radius | 3.531 cm |
| 3) Mean Radius  | 3.055 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 38.037 %                                    |
| 2) Effective Sample Weight | 436.125 gm                                  |
| 3) Mass                    | .445 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00202 gm-sec <sup>2</sup> /cm <sup>4</sup> |



# H) Torsion Paramters

1) Jsoil	4.188 gm-cm-sec2
2) Jsoil/Jcap	.0946
3) bs	.303
4) Shear Modulus	114.235*(fn2) gm/cm2
5) Shear Modulus	11.1928*(fn2) psi
6) Shear Strain	11.8078*(Res/fn2)
7) Torque Magnet Constant	.1372

# I) Longitudinal Paramters

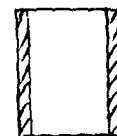
1) Wsoil/Wcap	.2418
2) bc	.473
3) Axial Modulus	46.868*(fn2) gm/cm2
4) Axial Modulus	4.5921*(fn2) psi
5) Axial Strain	12.2664*(Res/fn2)
6) Axial Magnet Constant	.1226

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10^-4	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.008	290.7	388050.	1.000	2.797	2.613	.949E-08
100.	.016	291.1	389118.	1.003	2.729	2.554	.388E-07
200.	.033	290.3	386982.	.997	2.724	2.542	.156E-06
400.	.066	289.6	385118.	.992	2.727	2.539	.627E-06
700.	.114	288.3	381669.	.984	2.783	2.579	.190E-05
1000.	.159	286.2	376129.	.969	2.886	2.655	.379E-05
1500.	.248	284.3	371151.	.956	2.817	2.574	.886E-05
2000.	.344	283.3	368545.	.950	2.727	2.483	.164E-04
3000.	.532	280.8	362069.	.933	2.689	2.427	.381E-04
4000.	.695	278.3	355651.	.917	2.793	2.498	.663E-04
5000.	.849	275.4	348277.	.898	2.918	2.584	.101E-03

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10^-4	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.063	101.1	114399.	1.000	3.141	.058	.462E-08
100.	.127	101.1	114399.	1.000	3.124	.058	.186E-07
200.	.249	100.8	113721.	.994	3.206	.059	.729E-07
400.	.478	100.4	112820.	.986	3.364	.062	.280E-06
700.	.695	99.5	110806.	.969	4.118	.075	.713E-06
1000.	.966	98.5	108590.	.949	4.320	.078	.142E-05
1500.	1.547	96.1	103363.	.904	4.252	.075	.340E-05
2000.	2.151	94.5	99950.	.874	4.216	.073	.630E-05
3000.	3.151	91.5	93705.	.819	4.606	.077	.138E-04
4000.	3.992	88.2	87067.	.761	5.217	.084	.234E-04

A) Test Identification

- 1) Test ID : #test93 EPK-80
- 2) Operator: Liang
- 3) Date : 09/04/91
- 4) Test Seq: cp = 90-15psi



5526E

B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.751 cm               |
| 2) Reduce Length         | 12.195 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 7.112 cm                |
| 2) Effect Area           | 19.458 cm <sup>2</sup>  |
| 2) Total Volume          | 248.100 cm <sup>3</sup> |
| 2) Reduced Volume        | 237.281 cm <sup>3</sup> |
| 2) Total Weight          | 472.900 gm              |
| 2) Reduced Weight        | 452.279 gm              |
| 2) Water Content         | 42.970 %                |
| 2) Weight of Solid       | 330.769 gm              |
| 2) Weight of Water       | 142.131 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 7.418 gm                      |
| 4) Corrected J                    | 44.272 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1803.92 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | 1.336 cm                |
| 2) Change in Volume | 25.000 cm <sup>3</sup>  |
| 3) New Length       | 10.859 cm               |
| 4) New Area         | 19.539 cm <sup>2</sup>  |
| 5) New Volume       | 212.281 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.120 cm                |
| 2) Change in Volume | 1.550 cm <sup>3</sup>   |
| 3) New Length       | 10.979 cm               |
| 4) New Area         | 19.181 cm <sup>2</sup>  |
| 5) New Volume       | 210.731 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.522 cm |
| 2) Outer Radius | 3.531 cm |
| 3) Mean Radius  | 3.054 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 34.959 %                                    |
| 2) Effective Sample Weight | 425.782 gm                                  |
| 3) Mass                    | .434 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00206 gm-sec <sup>2</sup> /cm <sup>4</sup> |

# H) Torsion Paramters

1) Jsoil	4.087 gm-cm-sec2
2) Jsoil/Jcap	.0923
3) bs	.299
4) Shear Modulus	109.499*(fn2) gm/cm2
5) Shear Modulus	10.7288*(fn2) psi
6) Shear Strain	12.3129*(Res/fn2)
7) Torque Magnet Constant	.1306

# I) Longitudinal Paramters

1) Wsoil/Wcap	.2360
2) bc	.468
3) Axial Modulus	44.857*(fn2) gm/cm2
4) Axial Modulus	4.3951*(fn2) psi
5) Axial Strain	12.7939*(Res/fn2)
6) Axial Magnet Constant	.1141

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.007	329.5	477153.	1.000	2.479	2.409	.719E-08
100.	.014	329.0	475706.	.997	2.441	2.368	.293E-07
200.	.029	327.5	471378.	.988	2.337	2.257	.124E-06
400.	.060	326.9	469653.	.984	2.292	2.209	.506E-06
700.	.107	325.2	464781.	.974	2.248	2.155	.160E-05
1000.	.156	324.4	462497.	.969	2.228	2.130	.330E-05
1500.	.236	322.9	458229.	.960	2.225	2.118	.751E-05
2000.	.314	322.0	455679.	.955	2.243	2.130	.133E-04
3000.	.465	320.3	450880.	.945	2.295	2.167	.296E-04
4000.	.610	318.2	444987.	.933	2.363	2.217	.518E-04

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.047	111.1	132422.	1.000	3.438	.063	.309E-08
100.	.096	111.1	132422.	1.000	3.399	.062	.125E-07
200.	.190	111.0	132183.	.998	3.438	.063	.496E-07
400.	.376	110.8	131707.	.995	3.490	.064	.196E-06
700.	.639	110.2	130285.	.984	3.625	.066	.584E-06
1000.	.899	109.9	129576.	.979	3.703	.067	.117E-05
1500.	1.295	109.1	127697.	.964	3.913	.070	.254E-05
2000.	1.704	108.1	125367.	.947	4.040	.072	.445E-05
3000.	2.497	106.1	120771.	.912	4.292	.075	.978E-05
4000.	3.210	103.4	114702.	.866	4.688	.080	.168E-04

A) Test Identification

- 1) Test ID : #test94 EPK-30 ocr=4
- 2) Operator: Liang
- 3) Date : 09/11/91
- 4) Test Seq: cp = 90-5 & 55-25 psi



OCR-4

B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.611 cm               |
| 2) Reduce Length         | 12.055 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 7.112 cm                |
| 2) Effect Area           | 19.458 cm <sup>2</sup>  |
| 2) Total Volume          | 245.381 cm <sup>3</sup> |
| 2) Reduced Volume        | 234.563 cm <sup>3</sup> |
| 2) Total Weight          | 478.400 gm              |
| 2) Reduced Weight        | 457.308 gm              |
| 2) Water Content         | 39.000 %                |
| 2) Weight of Solid       | 344.173 gm              |
| 2) Weight of Water       | 134.227 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 7.587 gm                      |
| 4) Corrected J                    | 44.274 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1804.09 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | 1.275 cm                |
| 2) Change in Volume | 23.700 cm <sup>3</sup>  |
| 3) New Length       | 10.780 cm               |
| 4) New Area         | 19.550 cm <sup>2</sup>  |
| 5) New Volume       | 210.863 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.250 cm                |
| 2) Change in Volume | -3.990 cm <sup>3</sup>  |
| 3) New Length       | 11.030 cm               |
| 4) New Area         | 19.466 cm <sup>2</sup>  |
| 5) New Volume       | 214.853 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.541 cm |
| 2) Outer Radius | 3.557 cm |
| 3) Mean Radius  | 3.077 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 33.285 %                                    |
| 2) Effective Sample Weight | 437.638 gm                                  |
| 3) Mass                    | .446 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00208 gm-sec <sup>2</sup> /cm <sup>4</sup> |

# H) Torsion Paramters

1) Jsoil	4.263 gm-cm-sec2
2) Jsoil/Jcap	.0963
3) bs	.305
4) Shear Modulus	106.957*(fn2) gm/cm2
5) Shear Modulus	10.4796*(fn2) psi
6) Shear Strain	12.3466*(Res/fn2)
7) Torque Magnet Constant	.1310

# I) Longitudinal Paramters

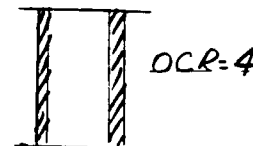
1) Wsoil/Wcap	.2426
2) bc	.473
3) Axial Modulus	44.505*(fn2) gm/cm2
4) Axial Modulus	4.3606*(fn2) psi
5) Axial Strain	12.7344*(Res/fn2)
6) Axial Magnet Constant	.1100

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.008	275.9	331918.	1.000	2.728	2.245	.869E-08
100.	.017	275.6	331196.	.998	2.723	2.238	.349E-07
200.	.034	275.8	331677.	.999	2.709	2.229	.140E-06
400.	.069	275.7	331437.	.999	2.657	2.185	.572E-06
700.	.123	275.9	331918.	1.000	2.625	2.160	.177E-05
1000.	.177	275.2	330236.	.995	2.617	2.148	.364E-05
1500.	.262	274.7	329037.	.991	2.658	2.178	.810E-05
2000.	.347	273.9	327123.	.986	2.689	2.197	.143E-04
3000.	.522	271.7	321889.	.970	2.725	2.209	.323E-04
4000.	.691	269.1	315758.	.951	2.799	2.247	.570E-04

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.064	96.4	97382.	1.000	3.383	.054	.426E-08
100.	.129	96.4	97382.	1.000	3.383	.054	.170E-07
200.	.257	96.1	96777.	.994	3.411	.054	.679E-07
400.	.508	95.7	95973.	.986	3.475	.055	.269E-06
700.	.869	95.0	94574.	.971	3.610	.057	.805E-06
1000.	1.230	94.2	92988.	.955	3.705	.058	.163E-05
1500.	1.777	92.6	89856.	.923	3.981	.061	.353E-05
2000.	2.306	91.1	86969.	.893	4.226	.064	.610E-05
3000.	3.353	87.3	79865.	.820	4.746	.069	.133E-04
4000.	4.297	83.9	73765.	.757	5.347	.074	.227E-04

A) Test Identification

- 1) Test ID : TEST2: REF reference test with trim sample
- 2) Operator: Rodrigo
- 3) Date : 01/31/89
- 4) Test Seq: Ko OC OCR-4



B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.212 cm               |
| 2) Reduce Length         | 11.656 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 6.604 cm                |
| 2) Effect Area           | 13.985 cm <sup>2</sup>  |
| 2) Total Volume          | 187.477 cm <sup>3</sup> |
| 2) Reduced Volume        | 176.659 cm <sup>3</sup> |
| 2) Total Weight          | 360.220 gm              |
| 2) Reduced Weight        | 339.433 gm              |
| 2) Water Content         | 39.200 %                |
| 2) Weight of Solid       | 258.779 gm              |
| 2) Weight of Water       | 101.441 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 5.899 gm                      |
| 4) Corrected J                    | 44.257 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1802.40 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .498 cm                 |
| 2) Change in Volume | 6.500 cm <sup>3</sup>   |
| 3) New Length       | 11.158 cm               |
| 4) New Area         | 14.025 cm <sup>2</sup>  |
| 5) New Volume       | 170.159 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.128 cm                |
| 2) Change in Volume | -1.600 cm <sup>3</sup>  |
| 3) New Length       | 11.286 cm               |
| 4) New Area         | 14.007 cm <sup>2</sup>  |
| 5) New Volume       | 171.759 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.542 cm |
| 2) Outer Radius | 3.305 cm |
| 3) Mean Radius  | 2.940 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 37.310 %                                    |
| 2) Effective Sample Weight | 334.543 gm                                  |
| 3) Mass                    | .341 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00199 gm-sec <sup>2</sup> /cm <sup>4</sup> |

#### H) Torsion Paramters

1) Jsoil	2.965 gm-cm-sec2
2) Jsoil/Jcap	.0670
3) bs	.256
4) Shear Modulus	152.425*(fn2) gm/cm2
5) Shear Modulus	14.9346*(fn2) psi
6) Shear Strain	11.5294*(Res/fn2)
7) Torque Magnet Constant	.1372

#### I) Longitudinal Paramters

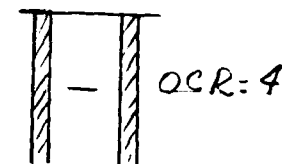
1) Wsoil/Wcap	.1856
2) bc	.418
3) Axial Modulus	57.181*(fn2) gm/cm2
4) Axial Modulus	5.6026*(fn2) psi
5) Axial Strain	12.4457*(Res/fn2)
6) Axial Magnet Constant	.1226

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.017	231.6	300501.	1.000	2.128	1.391	.177E-07
100.	.034	231.6	300501.	1.000	2.085	1.362	.725E-07
200.	.069	231.5	300242.	.999	2.078	1.357	.291E-06
400.	.136	231.3	299723.	.997	2.092	1.365	.116E-05
700.	.239	230.8	298429.	.993	2.099	1.367	.355E-05
1000.	.337	230.0	296364.	.986	2.139	1.388	.716E-05
1500.	.492	228.8	293279.	.976	2.223	1.435	.157E-04
2000.	.627	226.7	287920.	.958	2.367	1.514	.267E-04
3000.	.847	223.2	279099.	.929	2.712	1.708	.540E-04
4000.	1.037	219.6	270168.	.899	3.050	1.890	.882E-04
5000.	1.229	215.1	259209.	.863	3.353	2.035	.131E-03

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.221	82.6	101891.	1.000	1.309	.020	.159E-07
100.	.437	82.3	101152.	.993	1.335	.020	.629E-07
200.	.791	81.7	99683.	.978	1.498	.023	.228E-06
400.	1.292	80.2	96056.	.943	1.903	.028	.743E-06
700.	1.973	78.1	91092.	.894	2.300	.033	.199E-05
1000.	2.529	76.0	86259.	.847	2.707	.038	.364E-05
1500.	3.215	73.1	79692.	.782	3.458	.047	.693E-05
2000.	3.908	70.4	74015.	.726	4.083	.053	.112E-04
3000.	5.220	66.3	65645.	.644	5.171	.063	.225E-04
4000.	6.393	62.8	58897.	.578	6.273	.073	.368E-04
5000.	7.722	58.6	51283.	.503	7.457	.080	.555E-04
100.	.375	79.8	95100.	.933	1.657	.024	.539E-07

A) Test Identification

- 1) Test ID : TEST05: SAMPLE WITH SINGLE NOTCH
- 2) Operator: RODRIGO
- 3) Date : 03/26/89
- 4) Test Seq: Ko OC OCR-4



B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .556 cm                 |
| 2) Total Length          | 12.190 cm               |
| 2) Reduce Length         | 11.634 cm               |
| 2) Effect Inner Diameter | 5.080 cm                |
| 2) Effect Outer Diameter | 6.520 cm                |
| 2) Effect Area           | 13.119 cm <sup>2</sup>  |
| 2) Total Volume          | 179.256 cm <sup>3</sup> |
| 2) Reduced Volume        | 168.437 cm <sup>3</sup> |
| 2) Total Weight          | 369.110 gm              |
| 2) Reduced Weight        | 346.834 gm              |
| 2) Water Content         | 39.500 %                |
| 2) Weight of Solid       | 264.595 gm              |
| 2) Weight of Water       | 104.515 gm              |

C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 6.056 gm                      |
| 4) Corrected J                    | 44.259 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1802.56 gm                    |

D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .940 cm                 |
| 2) Change in Volume | 11.100 cm <sup>3</sup>  |
| 3) New Length       | 10.694 cm               |
| 4) New Area         | 13.225 cm <sup>2</sup>  |
| 5) New Volume       | 157.337 cm <sup>3</sup> |

E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | -.230 cm                |
| 2) Change in Volume | -2.700 cm <sup>3</sup>  |
| 3) New Length       | 10.924 cm               |
| 4) New Area         | 13.193 cm <sup>2</sup>  |
| 5) New Volume       | 160.037 cm <sup>3</sup> |

F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.547 cm |
| 2) Outer Radius | 3.269 cm |
| 3) Mean Radius  | 2.923 cm |

G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 36.332 %                                    |
| 2) Effective Sample Weight | 338.450 gm                                  |
| 3) Mass                    | .345 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00216 gm-sec <sup>2</sup> /cm <sup>4</sup> |



#### H) Torsion Paramters

1) Jsoil	2.964 gm-cm-sec2
2) Jsoil/Jcap	.0670
3) bs	.256
4) Shear Modulus	155.115*(fn2) gm/cm2
5) Shear Modulus	15.1982*(fn2) psi
6) Shear Strain	11.8433*(Res/fn2)
7) Torque Magnet Constant	.1359

#### I) Longitudinal Paramters

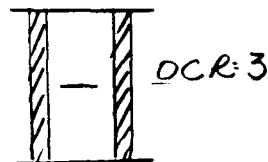
1) Wsoil/Wcap	.1878
2) bc	.420
3) Axial Modulus	57.540*(fn2) gm/cm2
4) Axial Modulus	5.6378*(fn2) psi
5) Axial Strain	12.8581*(Res/fn2)
6) Axial Magnet Constant	.1172

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.016	233.6	307633.	1.000	2.123	1.284	.156E-07
100.	.033	234.0	308688.	1.003	2.078	1.259	.637E-07
200.	.067	234.1	308952.	1.004	2.049	1.242	.258E-06
400.	.133	233.9	308424.	1.003	2.067	1.251	.103E-05
700.	.238	233.6	307633.	1.000	2.035	1.230	.320E-05
1000.	.337	233.2	306581.	.997	2.058	1.242	.648E-05
1500.	.481	231.5	302127.	.982	2.194	1.315	.139E-04
2000.	.626	230.5	299523.	.974	2.266	1.352	.241E-04
3000.	.872	226.7	289728.	.942	2.522	1.480	.504E-04
4000.	1.078	223.6	281859.	.916	2.797	1.619	.830E-04
5000.	1.244	219.9	272608.	.886	3.130	1.782	.120E-03

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.191	83.6	106215.	1.000	1.503	.023	.140E-07
100.	.357	83.1	104948.	.988	1.633	.025	.520E-07
200.	.646	82.5	103438.	.974	1.832	.028	.188E-06
400.	1.199	81.1	99957.	.941	2.041	.030	.699E-06
700.	1.871	79.2	95329.	.898	2.400	.035	.191E-05
1000.	2.403	77.0	90106.	.848	2.824	.040	.350E-05
1500.	3.114	73.9	82997.	.781	3.549	.048	.681E-05
2000.	3.811	71.3	77260.	.727	4.153	.054	.111E-04
3000.	5.050	66.4	67005.	.631	5.422	.066	.221E-04
4000.	6.254	62.4	59176.	.557	6.610	.076	.365E-04
5000.	7.905	57.8	50773.	.478	7.618	.081	.576E-04

#### A) Test Identification

- 1) Test ID : TEST12 Notched
- 2) Operator: chrys
- 3) Date : 09/14/89
- 4) Test Seq: Isotropic OCR-3



#### B) Specification

- |                          |                         |
|--------------------------|-------------------------|
| 1) Fin Reduction         | .600 cm                 |
| 2) Total Length          | 11.800 cm               |
| 2) Reduce Length         | 11.200 cm               |
| 2) Effect Inner Diameter | 5.100 cm                |
| 2) Effect Outer Diameter | 6.600 cm                |
| 2) Effect Area           | 13.784 cm <sup>2</sup>  |
| 2) Total Volume          | 179.953 cm <sup>3</sup> |
| 2) Reduced Volume        | 168.279 cm <sup>3</sup> |
| 2) Total Weight          | 384.300 gm              |
| 2) Reduced Weight        | 359.368 gm              |
| 2) Water Content         | 30.450 %                |
| 2) Weight of Solid       | 294.596 gm              |
| 2) Weight of Water       | 89.704 gm               |

#### C) Specimen Cap Specifications

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1) Mass Polar Moment of Inertia J | 44.200 gm-cm-sec <sup>2</sup> |
| 2) Weight                         | 1796.50 gm                    |
| ** Correction for soil in Cap **  |                               |
| 3) Corrected Weight               | 6.514 gm                      |
| 4) Corrected J                    | 44.263 gm-cm-sec <sup>2</sup> |
| 5) Corrected Weight               | 1803.01 gm                    |

#### D) One Dimensional Consolidation

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .000 cm                 |
| 2) Change in Volume | .000 cm <sup>3</sup>    |
| 3) New Length       | 11.200 cm               |
| 4) New Area         | 13.784 cm <sup>2</sup>  |
| 5) New Volume       | 168.279 cm <sup>3</sup> |

#### E) Hydrostatic Rebound

- |                     |                         |
|---------------------|-------------------------|
| 1) Change in Length | .220 cm                 |
| 2) Change in Volume | 7.450 cm <sup>3</sup>   |
| 3) New Length       | 10.980 cm               |
| 4) New Area         | 13.389 cm <sup>2</sup>  |
| 5) New Volume       | 160.829 cm <sup>3</sup> |

#### F) Radius

- |                 |          |
|-----------------|----------|
| 1) Inner Radius | 2.513 cm |
| 2) Outer Radius | 3.252 cm |
| 3) Mean Radius  | 2.899 cm |

#### G) Final Specimen Specification

- |                            |   |
|----------------------------|---|
| 1) Predicted Water Content | 27.926 %                                    |
| 2) Effective Sample Weight | 351.933 gm                                  |
| 3) Mass                    | .359 gm-sec <sup>2</sup> /cm                |
| 4) Mass per Volume         | .00223 gm-sec <sup>2</sup> /cm <sup>4</sup> |

# H) Torsion Paramters

1) Jsoil	3.032 gm-cm-sec2
2) Jsoil/Jcap	.0685
3) bs	.259
4) Shear Modulus	158.624*(fn2) gm/cm2
5) Shear Modulus	15.5420*(fn2) psi
6) Shear Strain	11.6843*(Res/fn2)
7) Torque Magnet Constant	.1390

# I) Longitudinal Paramters

1) Wsoil/Wcap	.1952
2) bc	.428
3) Axial Modulus	57.998*(fn2) gm/cm2
4) Axial Modulus	5.6826*(fn2) psi
5) Axial Strain	12.7925*(Res/fn2)
6) Axial Magnet Constant	.1260

Excitation Voltage	Axial Strain peak	Resonant Freq.	Youngs Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Es/Emax	%	N-sec-m	Nm
50.	.011	293.7	490162.	1.000	2.160	1.689	.114E-07
100.	.022	293.7	490162.	1.000	2.131	1.666	.464E-07
200.	.044	293.4	489161.	.998	2.152	1.680	.184E-06
400.	.088	292.6	486497.	.993	2.143	1.669	.744E-06
700.	.148	290.9	480861.	.981	2.256	1.747	.219E-05
1000.	.218	289.7	476902.	.973	2.201	1.697	.462E-05
1500.	.327	288.0	471321.	.962	2.231	1.710	.104E-04
2000.	.426	286.7	467076.	.953	2.304	1.758	.180E-04
4000.	.839	280.7	447731.	.913	2.437	1.821	.711E-04

Excitation Voltage	Shear Strain peak	Resonant Freq.	Shear Modulus	Normalized Modulus	Damping Ratio	Damping Coef.	Energy Diss.
mv rms	x10 <sup>-4</sup>	hz	kPa	Gs/Gmax	%	N-sec-m	Nm
50.	.097	102.3	162645.	1.000	2.006	.040	.760E-08
100.	.200	99.6	154173.	.948	2.047	.040	.314E-07
200.	.336	98.5	150786.	.927	2.495	.048	.105E-06
400.	.639	96.3	144126.	.886	2.740	.052	.402E-06
700.	1.028	95.9	143020.	.879	3.005	.057	.113E-05
1000.	1.324	94.0	137323.	.844	3.472	.064	.208E-05
1500.	2.149	90.7	127851.	.786	3.445	.061	.507E-05
2000.	2.725	88.1	120626.	.742	3.840	.066	.857E-05
4000.	4.696	79.8	98844.	.608	5.438	.085	.295E-04

**APPENDIX III**  
**TESTS LISTED IN TABLE 2.1**

Test Name: 31\_01/29/91

Material:

EPK

Shape:

Uniform

a/l:

0

Control: Stress

Loading: Static

Height: Variable

Beta: 0

Angle:

Consol.:

Ko NC

242 kPa

Length: 13.663 (cm)

Volume: 263.994 (cm<sup>3</sup>)

Inner\_radius: 2.530 (cm)

Area: 19.302 (cm<sup>2</sup>)

ECP: 241.150 (kPa)

Outter\_radius: 3.542 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	413.40	0.00000	172.25	0.000	0.00000
2	28.00	0.00141	413.40	0.00000	173.02	0.000	0.00000
3	57.76	0.00317	413.40	0.00000	174.77	0.000	0.00000
4	90.24	0.00525	413.40	0.00000	177.29	0.000	0.00000
5	125.55	0.00776	413.40	0.00000	180.56	0.000	0.00000
6	159.05	0.01065	413.40	0.00000	184.30	0.000	0.00000
7	194.25	0.01402	413.40	0.00000	188.58	0.000	0.00000
8	228.05	0.01770	413.40	0.00000	192.92	0.000	0.00000
9	262.36	0.02207	413.40	0.00000	197.40	0.000	0.00000
10	297.28	0.02741	413.40	0.00000	201.98	0.000	0.00000
11	330.21	0.03300	413.40	0.00000	206.13	0.000	0.00000
12	363.73	0.03920	413.40	0.00000	210.29	0.000	0.00000
13	395.50	0.04550	413.40	0.00000	214.05	0.000	0.00000
14	427.59	0.05263	413.40	0.00000	217.69	0.000	0.00000
15	457.20	0.05963	413.40	0.00000	220.93	0.000	0.00000
16	486.95	0.06759	413.40	0.00000	224.19	0.000	0.00000
17	514.54	0.07519	413.40	0.00000	226.93	0.000	0.00000
18	543.32	0.08386	413.40	0.00000	229.59	0.000	0.00000
19	570.29	0.09300	413.40	0.00000	231.95	0.000	0.00000
20	596.09	0.10345	413.40	0.00000	234.20	0.000	0.00000
21	620.45	0.11526	413.40	0.00000	236.28	0.000	0.00000
22	645.13	0.12796	413.40	0.00000	238.08	0.000	0.00000
23	669.55	0.14599	413.40	0.00000	240.06	0.000	0.00000
24	690.88	0.16713	413.40	0.00000	241.73	0.000	0.00000
25	712.82	0.19302	413.40	0.00000	243.60	0.000	0.00000
26	734.01	0.22829	413.40	0.00000	245.69	0.000	0.00000
27	753.51	0.27176	413.40	0.00000	247.75	0.000	0.00000
28	773.09	0.32176	413.40	0.00000	250.04	0.000	0.00000
29	792.88	0.38066	413.40	0.00000	252.33	0.000	0.00000
30	811.15	0.44405	413.40	0.00000	254.52	0.000	0.00000
31	827.86	0.50817	413.40	0.00000	256.15	0.000	0.00000
32	843.84	0.57228	413.40	0.00000	257.63	0.000	0.00000
33	858.66	0.64250	413.40	0.00000	258.88	0.000	0.00000
34	871.75	0.71215	413.40	0.00000	259.78	0.000	0.00000
35	883.11	0.77762	413.40	0.00000	260.32	0.000	0.00000
36	892.19	0.83887	413.40	0.00000	260.72	0.000	0.00000
37	899.26	0.89510	413.40	0.00000	260.96	0.000	0.00000
38	904.32	0.94432	413.40	0.00000	261.15	0.000	0.00000
39	907.36	0.98595	413.40	0.00000	261.24	0.000	0.00000
40	908.38	1.00563	413.40	0.00000	261.28	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	241.2	241.2	0.00000	0.00000
2	14.48	0.00010	0.00	0.00000	254.9	240.4	0.00010	-0.00005
3	29.87	0.00023	0.00	0.00000	268.5	238.6	0.00023	-0.00012
4	46.67	0.00038	0.00	0.00000	282.8	236.1	0.00038	-0.00019
5	64.92	0.00057	0.00	0.00000	297.8	232.8	0.00057	-0.00028
6	82.22	0.00078	0.00	0.00000	311.3	229.1	0.00078	-0.00039
7	100.40	0.00103	0.00	0.00000	325.2	224.8	0.00103	-0.00051
8	117.84	0.00130	0.00	0.00000	338.3	220.5	0.00130	-0.00065
9	135.52	0.00162	0.00	0.00000	351.5	216.0	0.00162	-0.00081
10	153.50	0.00201	0.00	0.00000	364.9	211.4	0.00201	-0.00100
11	170.43	0.00242	0.00	0.00000	377.7	207.3	0.00242	-0.00121
12	187.65	0.00287	0.00	0.00000	390.8	203.1	0.00287	-0.00144
13	203.94	0.00334	0.00	0.00000	403.3	199.4	0.00334	-0.00167
14	220.38	0.00386	0.00	0.00000	416.1	195.7	0.00386	-0.00193
15	235.51	0.00437	0.00	0.00000	428.0	192.5	0.00437	-0.00219
16	250.69	0.00496	0.00	0.00000	439.9	189.2	0.00496	-0.00248
17	264.75	0.00552	0.00	0.00000	451.2	186.5	0.00552	-0.00276
18	279.38	0.00616	0.00	0.00000	463.2	183.8	0.00616	-0.00308
19	293.05	0.00683	0.00	0.00000	474.5	181.5	0.00683	-0.00342
20	306.07	0.00760	0.00	0.00000	485.3	179.2	0.00760	-0.00380
21	318.30	0.00847	0.00	0.00000	495.4	177.1	0.00847	-0.00424
22	330.65	0.00941	0.00	0.00000	506.0	175.3	0.00941	-0.00471
23	342.71	0.01074	0.00	0.00000	516.0	173.3	0.01074	-0.00537
24	353.08	0.01231	0.00	0.00000	524.7	171.7	0.01231	-0.00615
25	363.59	0.01423	0.00	0.00000	533.4	169.8	0.01423	-0.00711
26	373.42	0.01685	0.00	0.00000	541.1	167.7	0.01685	-0.00843
27	382.10	0.02009	0.00	0.00000	547.7	165.6	0.02009	-0.01005
28	390.56	0.02383	0.00	0.00000	553.9	163.4	0.02383	-0.01192
29	398.79	0.02826	0.00	0.00000	559.9	161.1	0.02826	-0.01413
30	406.04	0.03304	0.00	0.00000	564.9	158.9	0.03304	-0.01652
31	412.39	0.03790	0.00	0.00000	569.6	157.2	0.03790	-0.01895
32	418.30	0.04279	0.00	0.00000	574.1	155.8	0.04279	-0.02139
33	423.36	0.04817	0.00	0.00000	577.9	154.5	0.04817	-0.02408
34	427.52	0.05353	0.00	0.00000	581.1	153.6	0.05353	-0.02677
35	430.90	0.05860	0.00	0.00000	584.0	153.1	0.05860	-0.02930
36	433.26	0.06336	0.00	0.00000	585.9	152.7	0.06336	-0.03168
37	434.78	0.06776	0.00	0.00000	587.2	152.4	0.06776	-0.03388
38	435.54	0.07162	0.00	0.00000	587.8	152.2	0.07162	-0.03581
39	435.58	0.07490	0.00	0.00000	587.7	152.2	0.07490	-0.03745
40	435.39	0.07645	0.00	0.00000	587.5	152.1	0.07645	-0.03823

Test Name: 32\_01/31/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
242 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 30  
  
Length: 13.835 (cm)  
Volume: 269.422 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 19.453 (cm<sup>2</sup>)  
ECP: 241.150 (kPa)  
Outter\_radius: 3.556 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	413.40	0.00000	172.25	0.000	0.00000
2	13.47	0.00012	413.40	0.00000	171.69	0.197	0.00051
3	27.83	0.00050	413.40	0.00000	172.49	0.548	0.00113
4	42.33	0.00129	413.40	0.00000	173.78	1.005	0.00188
5	58.33	0.00206	413.40	0.00000	175.66	1.452	0.00298
6	75.44	0.00316	413.40	0.00000	178.16	1.901	0.00457
7	92.26	0.00485	413.40	0.00000	181.03	2.381	0.00658
8	108.94	0.00668	413.40	0.00000	184.00	2.871	0.00905
9	126.08	0.00892	413.40	0.00000	187.10	3.337	0.01213
10	142.80	0.01112	413.40	0.00000	190.32	3.799	0.01568
11	158.84	0.01349	413.40	0.00000	193.45	4.262	0.01975
12	174.76	0.01615	413.40	0.00000	196.53	4.652	0.02413
13	190.01	0.01918	413.40	0.00000	199.77	5.089	0.02959
14	204.24	0.02232	413.40	0.00000	203.05	5.523	0.03619
15	217.92	0.02551	413.40	0.00000	206.27	5.798	0.04284
16	231.34	0.02911	413.40	0.00000	209.44	6.154	0.04978
17	245.04	0.03435	413.40	0.00000	212.56	6.668	0.06174
18	258.95	0.04081	413.40	0.00000	215.89	6.967	0.07559
19	271.99	0.04857	413.40	0.00000	219.15	7.482	0.09272
20	284.47	0.05800	413.40	0.00000	222.42	7.846	0.11256
21	296.05	0.06862	413.40	0.00000	225.30	8.189	0.13362
22	307.45	0.07918	413.40	0.00000	227.85	8.461	0.15201
23	318.28	0.09349	413.40	0.00000	229.97	8.774	0.17788
24	328.68	0.10997	413.40	0.00000	231.80	9.081	0.20567
25	338.15	0.12620	413.40	0.00000	232.97	9.324	0.23063
26	347.43	0.14401	413.40	0.00000	233.93	9.587	0.25621
27	356.39	0.16287	413.40	0.00000	234.46	9.779	0.28300
28	364.97	0.18018	413.40	0.00000	234.78	9.992	0.30809
29	372.86	0.19912	413.40	0.00000	235.02	10.164	0.33390
30	380.40	0.21700	413.40	0.00000	234.92	10.358	0.35790
31	387.62	0.23543	413.40	0.00000	234.79	10.495	0.38143
32	394.34	0.25806	413.40	0.00000	234.56	10.633	0.40737
33	400.81	0.28889	413.40	0.00000	234.36	10.740	0.43693
34	406.58	0.33735	413.40	0.00000	233.95	10.842	0.47366
35	411.37	0.40599	413.40	0.00000	233.57	10.953	0.51946
36	415.94	0.45505	413.40	0.00000	233.41	11.004	0.55171
37	420.44	0.51832	413.40	0.00000	233.48	11.018	0.58809
38	423.64	0.61043	413.40	0.00000	233.76	10.963	0.63730
39	425.56	0.74291	413.40	0.00000	234.44	11.010	0.70662
40	426.20	0.80155	413.40	0.00000	234.81	11.016	0.73917

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	241.2	241.2	0.00000	0.00000
2	6.91	0.00001	3.25	0.00011	249.9	240.4	0.00006	-0.00005
3	14.28	0.00004	9.07	0.00025	259.6	236.5	0.00014	-0.00012
4	21.73	0.00009	16.63	0.00042	270.4	230.6	0.00024	-0.00020
5	29.94	0.00015	24.02	0.00066	281.0	224.4	0.00039	-0.00031
6	38.72	0.00023	31.44	0.00102	291.5	217.7	0.00059	-0.00048
7	47.34	0.00035	39.36	0.00146	302.0	210.1	0.00087	-0.00069
8	55.90	0.00048	47.46	0.00201	312.4	202.3	0.00119	-0.00095
9	64.68	0.00065	55.16	0.00270	322.6	194.7	0.00160	-0.00127
10	73.25	0.00080	62.78	0.00349	332.4	187.0	0.00205	-0.00165
11	81.47	0.00098	70.41	0.00440	342.0	179.3	0.00256	-0.00207
12	89.61	0.00117	76.82	0.00537	350.6	172.7	0.00312	-0.00253
13	97.41	0.00139	84.02	0.00659	359.4	165.2	0.00380	-0.00311
14	104.68	0.00161	91.14	0.00807	367.8	157.6	0.00461	-0.00381
15	111.67	0.00185	95.65	0.00955	373.7	152.2	0.00543	-0.00451
16	118.51	0.00211	101.48	0.01110	380.7	145.7	0.00630	-0.00525
17	125.48	0.00249	109.89	0.01378	390.1	137.0	0.00776	-0.00652
18	132.54	0.00295	114.75	0.01688	396.3	131.3	0.00947	-0.00799
19	139.14	0.00352	123.12	0.02072	405.2	122.4	0.01157	-0.00981
20	145.42	0.00420	128.99	0.02518	411.8	115.6	0.01403	-0.01193
21	151.23	0.00497	134.47	0.02993	418.0	109.4	0.01667	-0.01418
22	156.93	0.00574	138.77	0.03409	423.4	104.6	0.01902	-0.01615
23	162.29	0.00678	143.69	0.03995	429.6	99.6	0.02231	-0.01892
24	167.39	0.00798	148.44	0.04628	435.7	94.9	0.02590	-0.02191
25	172.01	0.00916	152.14	0.05199	441.2	91.7	0.02918	-0.02460
26	176.50	0.01046	156.13	0.05787	447.1	88.4	0.03260	-0.02736
27	180.81	0.01184	158.92	0.06405	452.2	86.5	0.03619	-0.03027
28	184.92	0.01311	162.09	0.06986	457.7	84.5	0.03957	-0.03301
29	188.66	0.01450	164.54	0.07587	462.4	83.1	0.04309	-0.03584
30	192.22	0.01581	167.34	0.08149	467.6	81.6	0.04639	-0.03848
31	195.60	0.01716	169.21	0.08702	471.8	81.0	0.04967	-0.04108
32	198.66	0.01883	171.00	0.09317	475.9	80.4	0.05339	-0.04397
33	201.46	0.02110	172.13	0.10027	479.2	80.3	0.05785	-0.04730
34	203.64	0.02468	172.84	0.10929	481.9	80.7	0.06387	-0.05153
35	204.99	0.02978	173.28	0.12078	483.6	81.0	0.07183	-0.05694
36	206.50	0.03344	173.14	0.12898	484.8	81.7	0.07756	-0.06084
37	207.75	0.03818	172.13	0.13847	484.8	82.7	0.08447	-0.06538
38	207.89	0.04512	169.49	0.15162	482.4	84.8	0.09430	-0.07174
39	206.74	0.05519	167.67	0.17068	479.3	85.4	0.10864	-0.08105
40	206.12	0.05968	166.63	0.17974	477.6	85.7	0.11532	-0.08548



Test Name: 33\_02/05/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
242 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 45  
  
Length: 13.919 (cm)  
Volume: 269.562 (cm<sup>3</sup>)  
Inner\_radius: 2.533 (cm)

Area: 19.346 (cm<sup>2</sup>)  
ECP: 241.150 (kPa)  
Outter\_radius: 3.546 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	413.40	0.00000	172.25	0.000	0.00000
2	2.30	-0.00007	413.40	0.00000	171.78	0.193	0.00558
3	4.18	-0.00011	413.40	0.00000	171.61	0.501	0.00571
4	3.06	-0.00019	413.40	0.00000	171.45	0.858	0.00532
5	3.44	-0.00037	413.40	0.00000	171.28	1.244	0.00730
6	4.28	-0.00081	413.40	0.00000	171.16	1.672	0.00927
7	5.12	-0.00156	413.40	0.00000	171.06	2.095	0.01090
8	6.14	-0.00270	413.40	0.00000	171.00	2.493	0.01302
9	7.20	-0.00418	413.40	0.00000	171.07	2.898	0.01572
10	7.91	-0.00596	413.40	0.00000	171.25	3.305	0.01884
11	8.41	-0.00813	413.40	0.00000	171.54	3.674	0.02265
12	9.12	-0.01072	413.40	0.00000	171.96	4.055	0.02769
13	9.69	-0.01373	413.40	0.00000	172.56	4.458	0.03333
14	10.03	-0.01690	413.40	0.00000	173.35	4.765	0.03913
15	10.36	-0.02065	413.40	0.00000	174.13	5.133	0.04598
16	10.61	-0.02462	413.40	0.00000	175.06	5.488	0.05347
17	10.78	-0.02965	413.40	0.00000	176.04	5.850	0.06297
18	10.95	-0.03540	413.40	0.00000	177.00	6.243	0.07469
19	10.74	-0.04178	413.40	0.00000	178.22	6.628	0.08830
20	10.90	-0.04999	413.40	0.00000	179.26	7.084	0.10656
21	10.92	-0.05828	413.40	0.00000	180.45	7.415	0.12616
22	11.18	-0.06780	413.40	0.00000	181.26	7.828	0.15089
23	11.58	-0.07527	413.40	0.00000	182.32	8.112	0.17105
24	11.87	-0.08707	413.40	0.00000	182.52	8.560	0.20598
25	12.03	-0.09800	413.40	0.00000	182.86	8.874	0.24036
26	12.24	-0.10739	413.40	0.00000	182.95	9.108	0.27226
27	12.58	-0.11673	413.40	0.00000	182.67	9.439	0.30776
28	12.69	-0.12459	413.40	0.00000	182.23	9.695	0.34146
29	12.00	-0.13181	413.40	0.00000	181.68	9.948	0.37475
30	11.26	-0.13906	413.40	0.00000	180.93	10.186	0.41785
31	10.13	-0.14183	413.40	0.00000	180.36	10.332	0.46527
32	8.43	-0.13192	413.40	0.00000	179.67	10.480	0.53781
33	5.86	-0.11225	413.40	0.00000	179.01	10.687	0.63729
34	3.27	-0.08042	413.40	0.00000	178.89	10.835	0.75636
35	2.38	-0.05669	413.40	0.00000	179.46	10.889	0.83904
36	2.26	-0.03353	413.40	0.00000	179.82	10.959	0.90781
37	2.14	0.00167	413.40	0.00000	179.99	11.101	0.99492
38	2.05	0.03128	413.40	0.00000	180.24	11.178	1.06105
39	2.00	0.05398	413.40	0.00000	180.46	11.147	1.10495
40	1.98	0.06166	413.40	0.00000	180.54	11.135	1.11918

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	241.2	241.2	0.00000	0.00000
2	1.19	-0.00001	3.23	0.00123	245.5	238.9	0.00061	-0.00062
3	2.16	-0.00001	8.35	0.00126	251.3	234.4	0.00063	-0.00063
4	1.58	-0.00001	14.31	0.00117	257.1	228.4	0.00058	-0.00059
5	1.77	-0.00003	20.76	0.00161	263.8	222.2	0.00080	-0.00081
6	2.21	-0.00006	27.89	0.00204	271.3	215.4	0.00101	-0.00104
7	2.64	-0.00011	34.96	0.00240	278.6	208.7	0.00118	-0.00123
8	3.17	-0.00019	41.61	0.00287	285.6	202.3	0.00139	-0.00149
9	3.72	-0.00030	48.36	0.00346	292.6	195.8	0.00167	-0.00182
10	4.08	-0.00043	55.17	0.00415	299.4	189.0	0.00199	-0.00221
11	4.34	-0.00058	61.33	0.00499	305.4	182.7	0.00239	-0.00268
12	4.71	-0.00077	67.72	0.00610	311.6	176.0	0.00291	-0.00329
13	5.01	-0.00099	74.48	0.00733	317.9	168.8	0.00349	-0.00399
14	5.18	-0.00121	79.63	0.00861	322.3	163.0	0.00410	-0.00470
15	5.35	-0.00148	85.82	0.01011	327.8	156.1	0.00481	-0.00555
16	5.49	-0.00177	91.79	0.01175	332.9	149.2	0.00558	-0.00647
17	5.58	-0.00213	97.89	0.01383	338.1	142.2	0.00657	-0.00763
18	5.67	-0.00254	104.53	0.01640	343.8	134.7	0.00778	-0.00905
19	5.56	-0.00300	111.05	0.01937	349.1	126.9	0.00920	-0.01069
20	5.65	-0.00359	118.81	0.02336	355.8	118.1	0.01109	-0.01288
21	5.66	-0.00418	124.47	0.02763	360.3	111.3	0.01312	-0.01521
22	5.80	-0.00486	131.54	0.03301	366.6	103.5	0.01569	-0.01812
23	6.01	-0.00539	136.42	0.03740	370.5	97.6	0.01778	-0.02048
24	6.16	-0.00624	144.14	0.04498	378.1	89.8	0.02141	-0.02453
25	6.25	-0.00702	149.59	0.05242	383.3	84.0	0.02498	-0.02849
26	6.37	-0.00769	153.69	0.05932	387.4	79.9	0.02829	-0.03214
27	6.55	-0.00835	159.44	0.06699	393.5	74.5	0.03199	-0.03616
28	6.61	-0.00891	163.91	0.07426	398.4	70.5	0.03550	-0.03995
29	6.25	-0.00943	168.31	0.08143	403.2	66.5	0.03897	-0.04368
30	5.87	-0.00994	172.47	0.09073	407.9	62.9	0.04349	-0.04846
31	5.28	-0.01014	174.99	0.10100	410.7	60.7	0.04853	-0.05360
32	4.39	-0.00943	177.32	0.11687	413.3	58.6	0.05650	-0.06122
33	3.05	-0.00803	180.43	0.13878	416.4	55.5	0.06764	-0.07166
34	1.70	-0.00576	182.31	0.16527	417.7	53.0	0.08131	-0.08419
35	1.23	-0.00406	182.75	0.18380	417.3	51.8	0.09093	-0.09297
36	1.17	-0.00241	183.46	0.19936	417.6	50.7	0.09910	-0.10030
37	1.10	0.00012	185.14	0.21932	419.1	48.8	0.10969	-0.10963
38	1.06	0.00225	185.83	0.23464	419.5	47.9	0.11790	-0.11677
39	1.03	0.00389	184.86	0.24495	418.3	48.6	0.12348	-0.12154
40	1.02	0.00444	184.52	0.24831	417.9	48.9	0.12531	-0.12309

Test Name: 35\_02/12/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
242 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 60

Length: 13.729 (cm)  
Volume: 267.335 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 19.453 (cm<sup>2</sup>)  
ECP: 241.150 (kPa)  
Outter\_radius: 3.556 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	413.40	0.00000	172.25	0.000	0.00000
2	-9.77	-0.00017	413.40	0.00000	171.70	0.245	0.00055
3	-18.64	-0.00061	413.40	0.00000	170.89	0.534	0.00130
4	-29.69	-0.00122	413.40	0.00000	169.81	0.867	0.00220
5	-39.58	-0.00201	413.40	0.00000	168.75	1.205	0.00337
6	-51.17	-0.00318	413.40	0.00000	167.71	1.551	0.00454
7	-63.89	-0.00527	413.40	0.00000	166.27	1.904	0.00628
8	-72.53	-0.00804	413.40	0.00000	165.22	2.208	0.00840
9	-85.97	-0.01299	413.40	0.00000	164.15	2.567	0.01170
10	-95.09	-0.01917	413.40	0.00000	163.42	2.860	0.01551
11	-106.84	-0.02753	413.40	0.00000	162.87	3.189	0.02028
12	-117.74	-0.03916	413.40	0.00000	162.39	3.499	0.02689
13	-127.02	-0.05064	413.40	0.00000	162.47	3.774	0.03337
14	-139.27	-0.06525	413.40	0.00000	162.28	4.085	0.04184
15	-146.00	-0.08080	413.40	0.00000	162.45	4.344	0.05086
16	-156.13	-0.09705	413.40	0.00000	162.62	4.597	0.06098
17	-165.89	-0.11730	413.40	0.00000	162.25	4.877	0.07365
18	-172.06	-0.13640	413.40	0.00000	162.23	5.097	0.08633
19	-181.55	-0.15712	413.40	0.00000	161.73	5.332	0.10034
20	-189.13	-0.18103	413.40	0.00000	160.79	5.597	0.11680
21	-195.32	-0.20564	413.40	0.00000	159.74	5.799	0.13563
22	-202.68	-0.22951	413.40	0.00000	158.60	6.021	0.15402
23	-211.75	-0.25587	413.40	0.00000	156.97	6.239	0.17948
24	-217.33	-0.28351	413.40	0.00000	155.21	6.421	0.20377
25	-221.93	-0.30746	413.40	0.00000	153.99	6.604	0.22610
26	-227.47	-0.33274	413.40	0.00000	152.51	6.788	0.25498
27	-234.33	-0.35857	413.40	0.00000	150.99	6.974	0.28983
28	-239.78	-0.38563	413.40	0.00000	149.29	7.133	0.32647
29	-243.98	-0.40938	413.40	0.00000	148.23	7.290	0.36612
30	-247.14	-0.43308	413.40	0.00000	147.43	7.428	0.41819
31	-252.00	-0.45556	413.40	0.00000	146.90	7.542	0.48075
32	-256.58	-0.47893	413.40	0.00000	146.41	7.620	0.55497
33	-261.36	-0.50249	413.40	0.00000	146.18	7.739	0.64143
34	-263.97	-0.52297	413.40	0.00000	145.84	7.775	0.72212
35	-265.85	-0.54211	413.40	0.00000	145.49	7.789	0.81183
36	-266.43	-0.56137	413.40	0.00000	145.25	7.823	0.92419
37	-266.09	-0.57881	413.40	0.00000	145.08	7.803	1.03344
38	-265.90	-0.59958	413.40	0.00000	145.04	7.628	1.16290
39	-265.93	-0.61716	413.40	0.00000	145.03	7.561	1.26308
40	-265.93	-0.62300	413.40	0.00000	145.03	7.540	1.29366

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	241.2	241.2	0.00000	0.00000
2	-5.01	-0.00001	4.05	0.00012	244.0	234.4	0.00006	-0.00007
3	-9.57	-0.00004	8.84	0.00029	247.8	227.7	0.00014	-0.00016
4	-15.24	-0.00009	14.34	0.00049	252.2	219.7	0.00023	-0.00028
5	-20.32	-0.00015	19.93	0.00076	256.9	212.1	0.00036	-0.00043
6	-26.27	-0.00023	25.67	0.00102	261.5	203.8	0.00048	-0.00060
7	-32.81	-0.00038	31.51	0.00141	266.2	195.2	0.00066	-0.00086
8	-37.26	-0.00059	36.55	0.00188	270.6	188.5	0.00089	-0.00118
9	-44.18	-0.00095	42.53	0.00262	275.1	179.2	0.00125	-0.00173
10	-48.89	-0.00140	47.41	0.00347	278.9	172.2	0.00168	-0.00237
11	-54.96	-0.00200	52.92	0.00453	282.7	163.4	0.00222	-0.00322
12	-60.62	-0.00285	58.14	0.00600	286.3	155.1	0.00297	-0.00439
13	-65.45	-0.00368	62.78	0.00744	289.0	147.4	0.00371	-0.00555
14	-71.84	-0.00474	68.06	0.00931	292.2	138.2	0.00467	-0.00704
15	-75.39	-0.00587	72.50	0.01130	295.0	131.5	0.00569	-0.00863
16	-80.72	-0.00704	76.86	0.01352	297.2	123.6	0.00682	-0.01034
17	-85.89	-0.00851	81.72	0.01629	300.5	115.9	0.00822	-0.01248
18	-89.21	-0.00989	85.58	0.01906	303.1	110.1	0.00960	-0.01455
19	-94.27	-0.01138	89.74	0.02210	305.9	103.2	0.01112	-0.01681
20	-98.37	-0.01310	94.44	0.02566	309.9	96.9	0.01289	-0.01944
21	-101.78	-0.01487	98.10	0.02972	313.3	92.3	0.01486	-0.02230
22	-105.79	-0.01658	102.12	0.03366	316.9	86.9	0.01678	-0.02507
23	-110.74	-0.01847	106.12	0.03912	320.8	81.4	0.01935	-0.02858
24	-113.88	-0.02044	109.54	0.04428	324.7	77.8	0.02182	-0.03204
25	-116.49	-0.02215	112.94	0.04901	328.2	74.1	0.02407	-0.03514
26	-119.61	-0.02395	116.42	0.05512	332.0	70.2	0.02691	-0.03888
27	-123.44	-0.02578	119.93	0.06248	335.6	65.8	0.03029	-0.04319
28	-126.56	-0.02770	123.02	0.07018	339.2	62.5	0.03385	-0.04770
29	-128.99	-0.02938	126.05	0.07850	342.3	59.1	0.03767	-0.05236
30	-130.88	-0.03106	128.76	0.08944	345.0	56.1	0.04266	-0.05819
31	-133.66	-0.03264	131.03	0.10258	346.8	52.6	0.04867	-0.06499
32	-136.32	-0.03429	132.72	0.11812	348.0	49.6	0.05584	-0.07299
33	-139.09	-0.03595	135.12	0.13618	349.6	45.7	0.06425	-0.08222
34	-140.68	-0.03739	136.05	0.15298	350.4	44.1	0.07212	-0.09081
35	-141.87	-0.03873	136.58	0.17164	350.9	43.1	0.08092	-0.10028
36	-142.37	-0.04008	137.45	0.19500	351.7	42.2	0.09201	-0.11205
37	-142.36	-0.04130	137.35	0.21766	351.8	42.4	0.10283	-0.12347
38	-142.47	-0.04275	134.56	0.24439	349.4	44.9	0.11564	-0.13702
39	-142.66	-0.04397	133.62	0.26495	348.5	45.6	0.12553	-0.14751
40	-142.72	-0.04438	133.32	0.27120	348.2	45.8	0.12853	-0.15072

Test Name: 34\_02/07/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
242 kPa

Length: 13.906 (cm)  
Volume: 269.370 (cm<sup>3</sup>)  
Inner\_radius: 2.533 (cm)

Area: 19.350 (cm<sup>2</sup>)  
ECP: 241.150 (kPa)  
Outter\_radius: 3.547 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	413.40	0.00000	172.25	0.000	0.00000
2	-14.13	-0.00049	413.40	0.00000	171.68	0.000	0.00000
3	-32.83	-0.00119	413.40	0.00000	170.17	0.000	0.00000
4	-52.05	-0.00331	413.40	0.00000	168.18	0.000	0.00000
5	-71.05	-0.00700	413.40	0.00000	165.86	0.000	0.00000
6	-93.28	-0.01395	413.40	0.00000	163.90	0.000	0.00000
7	-113.72	-0.02429	413.40	0.00000	162.75	0.000	0.00000
8	-132.43	-0.03756	413.40	0.00000	162.40	0.000	0.00000
9	-151.21	-0.05446	413.40	0.00000	162.38	0.000	0.00000
10	-172.42	-0.07404	413.40	0.00000	162.62	0.000	0.00000
11	-192.16	-0.09548	413.40	0.00000	163.05	0.000	0.00000
12	-209.05	-0.11975	413.40	0.00000	163.43	0.000	0.00000
13	-226.43	-0.14712	413.40	0.00000	163.46	0.000	0.00000
14	-245.66	-0.17732	413.40	0.00000	162.99	0.000	0.00000
15	-261.08	-0.20903	413.40	0.00000	162.41	0.000	0.00000
16	-277.68	-0.24602	413.40	0.00000	161.20	0.000	0.00000
17	-295.17	-0.28502	413.40	0.00000	159.59	0.000	0.00000
18	-309.27	-0.32533	413.40	0.00000	157.91	0.000	0.00000
19	-325.26	-0.37166	413.40	0.00000	155.39	0.000	0.00000
20	-340.03	-0.41591	413.40	0.00000	153.02	0.000	0.00000
21	-353.92	-0.46495	413.40	0.00000	150.26	0.000	0.00000
22	-366.19	-0.51072	413.40	0.00000	147.76	0.000	0.00000
23	-376.02	-0.56052	413.40	0.00000	145.06	0.000	0.00000
24	-390.44	-0.60733	413.40	0.00000	142.67	0.000	0.00000
25	-396.51	-0.65829	413.40	0.00000	140.04	0.000	0.00000
26	-405.74	-0.70142	413.40	0.00000	137.68	0.000	0.00000
27	-416.23	-0.75217	413.40	0.00000	134.77	0.000	0.00000
28	-423.89	-0.79967	413.40	0.00000	132.00	0.000	0.00000
29	-433.66	-0.84877	413.40	0.00000	129.10	0.000	0.00000
30	-440.96	-0.90416	413.40	0.00000	126.09	0.000	0.00000
31	-444.90	-0.95423	413.40	0.00000	123.57	0.000	0.00000
32	-450.92	-1.00277	413.40	0.00000	121.45	0.000	0.00000
33	-455.36	-1.04802	413.40	0.00000	119.50	0.000	0.00000
34	-460.18	-1.09186	413.40	0.00000	117.78	0.000	0.00000
35	-462.90	-1.12934	413.40	0.00000	116.42	0.000	0.00000
36	-464.64	-1.16308	413.40	0.00000	115.32	0.000	0.00000
37	-465.83	-1.19785	413.40	0.00000	114.38	0.000	0.00000
38	-464.09	-1.24130	413.40	0.00000	113.80	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	241.2	241.2	0.00000	0.00000
2	-7.29	-0.00004	0.00	0.00000	241.7	234.4	0.00002	-0.00004
3	-16.95	-0.00009	0.00	0.00000	243.2	226.3	0.00004	-0.00009
4	-26.87	-0.00024	0.00	0.00000	245.2	218.3	0.00012	-0.00024
5	-36.69	-0.00050	0.00	0.00000	247.5	210.9	0.00025	-0.00050
6	-48.19	-0.00100	0.00	0.00000	249.5	201.3	0.00050	-0.00100
7	-58.79	-0.00175	0.00	0.00000	250.7	191.9	0.00087	-0.00175
8	-68.53	-0.00270	0.00	0.00000	251.0	182.5	0.00135	-0.00270
9	-78.35	-0.00391	0.00	0.00000	251.0	172.7	0.00195	-0.00391
10	-89.46	-0.00531	0.00	0.00000	250.8	161.3	0.00266	-0.00531
11	-99.85	-0.00684	0.00	0.00000	250.4	150.5	0.00342	-0.00684
12	-108.82	-0.00857	0.00	0.00000	250.0	141.2	0.00429	-0.00857
13	-118.10	-0.01052	0.00	0.00000	249.9	131.8	0.00526	-0.01052
14	-128.40	-0.01267	0.00	0.00000	250.4	122.0	0.00634	-0.01267
15	-136.77	-0.01492	0.00	0.00000	251.0	114.2	0.00746	-0.01492
16	-145.85	-0.01754	0.00	0.00000	252.2	106.4	0.00877	-0.01754
17	-155.46	-0.02029	0.00	0.00000	253.8	98.3	0.01014	-0.02029
18	-163.35	-0.02312	0.00	0.00000	255.5	92.1	0.01156	-0.02312
19	-172.35	-0.02637	0.00	0.00000	258.0	85.7	0.01319	-0.02637
20	-180.74	-0.02947	0.00	0.00000	260.4	79.6	0.01473	-0.02947
21	-188.77	-0.03289	0.00	0.00000	263.1	74.4	0.01644	-0.03289
22	-195.93	-0.03607	0.00	0.00000	265.6	69.7	0.01803	-0.03607
23	-201.89	-0.03952	0.00	0.00000	268.3	66.5	0.01976	-0.03952
24	-210.31	-0.04275	0.00	0.00000	270.7	60.4	0.02137	-0.04275
25	-214.33	-0.04625	0.00	0.00000	273.4	59.0	0.02313	-0.04625
26	-219.97	-0.04921	0.00	0.00000	275.7	55.8	0.02460	-0.04921
27	-226.44	-0.05268	0.00	0.00000	278.6	52.2	0.02634	-0.05268
28	-231.35	-0.05591	0.00	0.00000	281.4	50.1	0.02796	-0.05591
29	-237.47	-0.05924	0.00	0.00000	284.3	46.8	0.02962	-0.05924
30	-242.38	-0.06299	0.00	0.00000	287.3	44.9	0.03150	-0.06299
31	-245.37	-0.06637	0.00	0.00000	289.8	44.5	0.03318	-0.06637
32	-249.50	-0.06963	0.00	0.00000	292.0	42.4	0.03481	-0.06963
33	-252.72	-0.07266	0.00	0.00000	293.9	41.2	0.03633	-0.07266
34	-256.15	-0.07558	0.00	0.00000	295.6	39.5	0.03779	-0.07558
35	-258.31	-0.07808	0.00	0.00000	297.0	38.7	0.03904	-0.07808
36	-259.86	-0.08032	0.00	0.00000	298.1	38.2	0.04016	-0.08032
37	-261.13	-0.08263	0.00	0.00000	299.0	37.9	0.04131	-0.08263
38	-260.90	-0.08550	0.00	0.00000	299.6	38.7	0.04275	-0.08550

Test Name: 1b\_01/10/90

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 0

Length: 12.967 (cm)  
Volume: 252.498 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 19.453 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.556 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	35.16	0.00102	482.30	0.00000	139.49	0.000	0.00000
3	75.95	0.00244	482.30	0.00000	141.88	0.000	0.00000
4	120.15	0.00422	482.30	0.00000	145.17	0.000	0.00000
5	164.94	0.00637	482.30	0.00000	149.27	0.000	0.00000
6	210.24	0.00912	482.30	0.00000	154.08	0.000	0.00000
7	254.93	0.01239	482.30	0.00000	159.39	0.000	0.00000
8	299.42	0.01622	482.30	0.00000	164.97	0.000	0.00000
9	342.10	0.02045	482.30	0.00000	170.60	0.000	0.00000
10	382.94	0.02513	482.30	0.00000	176.12	0.000	0.00000
11	423.82	0.03039	482.30	0.00000	181.47	0.000	0.00000
12	463.68	0.03611	482.30	0.00000	186.67	0.000	0.00000
13	503.20	0.04231	482.30	0.00000	191.63	0.000	0.00000
14	541.79	0.04897	482.30	0.00000	196.23	0.000	0.00000
15	578.96	0.05597	482.30	0.00000	200.57	0.000	0.00000
16	616.25	0.06355	482.30	0.00000	204.53	0.000	0.00000
17	652.73	0.07148	482.30	0.00000	208.16	0.000	0.00000
18	687.42	0.07986	482.30	0.00000	211.63	0.000	0.00000
19	722.24	0.08893	482.30	0.00000	214.86	0.000	0.00000
20	754.60	0.09823	482.30	0.00000	217.84	0.000	0.00000
21	787.55	0.10877	482.30	0.00000	220.68	0.000	0.00000
22	818.07	0.12042	482.30	0.00000	223.42	0.000	0.00000
23	847.40	0.13429	482.30	0.00000	226.03	0.000	0.00000
24	874.47	0.15026	482.30	0.00000	228.52	0.000	0.00000
25	901.47	0.16988	482.30	0.00000	231.02	0.000	0.00000
26	928.00	0.19463	482.30	0.00000	233.69	0.000	0.00000
27	953.68	0.22453	482.30	0.00000	236.46	0.000	0.00000
28	978.97	0.26096	482.30	0.00000	239.36	0.000	0.00000
29	1002.34	0.30322	482.30	0.00000	242.30	0.000	0.00000
30	1024.63	0.35015	482.30	0.00000	245.14	0.000	0.00000
31	1046.05	0.40020	482.30	0.00000	247.75	0.000	0.00000
32	1065.99	0.45307	482.30	0.00000	250.00	0.000	0.00000
33	1083.53	0.50568	482.30	0.00000	251.87	0.000	0.00000
34	1099.42	0.55613	482.30	0.00000	253.39	0.000	0.00000
35	1112.56	0.60688	482.30	0.00000	254.58	0.000	0.00000
36	1123.71	0.65761	482.30	0.00000	255.53	0.000	0.00000
37	1131.73	0.71776	482.30	0.00000	256.26	0.000	0.00000
38	1137.48	0.78181	482.30	0.00000	256.78	0.000	0.00000
39	1140.93	0.86691	482.30	0.00000	257.10	0.000	0.00000
40	1142.07	0.90511	482.30	0.00000	257.20	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	18.05	0.00008	0.00	0.00000	360.9	342.8	0.00008	-0.00004
3	38.98	0.00019	0.00	0.00000	379.4	340.4	0.00019	-0.00009
4	61.66	0.00033	0.00	0.00000	398.8	337.1	0.00033	-0.00016
5	84.63	0.00049	0.00	0.00000	417.7	333.0	0.00049	-0.00025
6	107.86	0.00070	0.00	0.00000	436.1	328.2	0.00070	-0.00035
7	130.75	0.00096	0.00	0.00000	453.7	322.9	0.00096	-0.00048
8	153.52	0.00125	0.00	0.00000	470.9	317.3	0.00125	-0.00063
9	175.35	0.00158	0.00	0.00000	487.1	311.7	0.00158	-0.00079
10	196.22	0.00194	0.00	0.00000	502.4	306.2	0.00194	-0.00097
11	217.07	0.00235	0.00	0.00000	517.9	300.8	0.00235	-0.00117
12	237.38	0.00279	0.00	0.00000	533.0	295.6	0.00279	-0.00139
13	257.49	0.00327	0.00	0.00000	548.2	290.7	0.00327	-0.00163
14	277.09	0.00378	0.00	0.00000	563.2	286.1	0.00378	-0.00189
15	295.95	0.00433	0.00	0.00000	577.7	281.7	0.00433	-0.00216
16	314.82	0.00491	0.00	0.00000	592.6	277.8	0.00491	-0.00246
17	333.26	0.00553	0.00	0.00000	607.4	274.1	0.00553	-0.00276
18	350.74	0.00618	0.00	0.00000	621.4	270.7	0.00618	-0.00309
19	368.24	0.00688	0.00	0.00000	635.7	267.4	0.00688	-0.00344
20	384.46	0.00760	0.00	0.00000	648.9	264.5	0.00760	-0.00380
21	400.92	0.00842	0.00	0.00000	662.5	261.6	0.00842	-0.00421
22	416.08	0.00933	0.00	0.00000	675.0	258.9	0.00933	-0.00466
23	430.53	0.01041	0.00	0.00000	686.8	256.3	0.01041	-0.00521
24	443.74	0.01166	0.00	0.00000	697.5	253.8	0.01166	-0.00583
25	456.74	0.01319	0.00	0.00000	708.0	251.3	0.01319	-0.00659
26	469.27	0.01512	0.00	0.00000	717.9	248.6	0.01512	-0.00756
27	481.13	0.01747	0.00	0.00000	727.0	245.8	0.01747	-0.00873
28	492.47	0.02033	0.00	0.00000	735.4	242.9	0.02033	-0.01017
29	502.55	0.02366	0.00	0.00000	742.6	240.0	0.02366	-0.01183
30	511.82	0.02738	0.00	0.00000	749.0	237.2	0.02738	-0.01369
31	520.45	0.03135	0.00	0.00000	755.0	234.6	0.03135	-0.01567
32	528.14	0.03557	0.00	0.00000	760.4	232.3	0.03557	-0.01778
33	534.57	0.03978	0.00	0.00000	765.0	230.4	0.03978	-0.01989
34	540.22	0.04384	0.00	0.00000	769.1	228.9	0.04384	-0.02192
35	544.44	0.04793	0.00	0.00000	772.2	227.7	0.04793	-0.02397
36	547.64	0.05205	0.00	0.00000	774.4	226.8	0.05205	-0.02602
37	548.85	0.05694	0.00	0.00000	774.9	226.0	0.05694	-0.02847
38	548.75	0.06219	0.00	0.00000	774.3	225.5	0.06219	-0.03109
39	546.57	0.06920	0.00	0.00000	771.8	225.2	0.06920	-0.03460
40	545.39	0.07236	0.00	0.00000	770.5	225.1	0.07236	-0.03618



Test Name: 2\_11/15/89

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Length: 13.094 (cm)  
Volume: 252.096 (cm<sup>3</sup>)  
Inner\_radius: 2.526 (cm)

Area: 19.233 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.536 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	54.13	0.00209	482.30	0.00000	141.11	1.030	0.00119
3	86.74	0.00398	482.30	0.00000	144.48	1.822	0.00263
4	111.58	0.00562	482.30	0.00000	147.77	2.401	0.00400
5	137.30	0.00758	482.30	0.00000	151.03	2.979	0.00575
6	162.41	0.00971	482.30	0.00000	154.57	3.553	0.00786
7	187.29	0.01222	482.30	0.00000	158.29	4.114	0.01036
8	211.91	0.01480	482.30	0.00000	162.07	4.679	0.01337
9	236.14	0.01777	482.30	0.00000	165.83	5.232	0.01691
10	259.92	0.02105	482.30	0.00000	169.52	5.777	0.02098
11	283.60	0.02468	482.30	0.00000	173.32	6.320	0.02563
12	307.11	0.02873	482.30	0.00000	177.21	6.855	0.03105
13	330.10	0.03308	482.30	0.00000	181.08	7.396	0.03739
14	352.94	0.03819	482.30	0.00000	184.90	7.929	0.04488
15	375.07	0.04372	482.30	0.00000	188.66	8.446	0.05335
16	396.76	0.05004	482.30	0.00000	192.52	8.946	0.06305
17	418.12	0.05759	482.30	0.00000	196.47	9.470	0.07451
18	439.19	0.06662	482.30	0.00000	200.40	9.977	0.08828
19	458.90	0.07716	482.30	0.00000	204.16	10.475	0.10458
20	477.60	0.09013	482.30	0.00000	207.76	10.974	0.12432
21	496.67	0.10528	482.30	0.00000	211.22	11.456	0.14690
22	515.18	0.12360	482.30	0.00000	214.39	11.917	0.17366
23	532.10	0.14400	482.30	0.00000	217.18	12.371	0.20188
24	548.73	0.16887	482.30	0.00000	219.45	12.847	0.23494
25	564.58	0.19818	482.30	0.00000	221.21	13.298	0.27355
26	579.80	0.23134	482.30	0.00000	222.38	13.756	0.31929
27	594.50	0.27046	482.30	0.00000	223.01	14.173	0.37379
28	607.16	0.31246	482.30	0.00000	223.19	14.535	0.43434
29	620.23	0.35427	482.30	0.00000	223.16	14.828	0.49755
30	634.13	0.39605	482.30	0.00000	223.19	15.089	0.56056
31	646.02	0.44231	482.30	0.00000	223.12	15.338	0.62502
32	656.75	0.49089	482.30	0.00000	222.99	15.548	0.68768
33	667.44	0.54007	482.30	0.00000	222.92	15.750	0.74514
34	678.10	0.59982	482.30	0.00000	222.80	15.975	0.80695
35	688.78	0.66411	482.30	0.00000	222.66	16.165	0.86694
36	699.16	0.73965	482.30	0.00000	222.62	16.342	0.92373
37	708.79	0.82283	482.30	0.00000	222.64	16.506	0.97454
38	717.13	0.91647	482.30	0.00000	222.71	16.634	1.02030
39	722.32	1.00047	482.30	0.00000	222.75	16.715	1.05247
40	724.06	1.03274	482.30	0.00000	222.77	16.741	1.06314

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	28.10	0.00016	17.34	0.00028	377.5	332.9	0.00022	-0.00014
3	45.03	0.00030	30.65	0.00061	398.4	322.3	0.00046	-0.00031
4	57.91	0.00043	40.38	0.00093	413.2	313.8	0.00067	-0.00046
5	71.25	0.00058	50.09	0.00134	428.4	305.4	0.00094	-0.00066
6	84.27	0.00074	59.73	0.00184	443.0	296.8	0.00126	-0.00089
7	97.16	0.00093	69.14	0.00242	457.1	288.1	0.00163	-0.00117
8	109.91	0.00113	78.60	0.00313	471.1	279.3	0.00206	-0.00150
9	122.45	0.00136	87.88	0.00396	484.8	270.6	0.00257	-0.00189
10	134.74	0.00161	96.99	0.00491	498.2	262.1	0.00314	-0.00233
11	146.98	0.00189	106.07	0.00600	511.5	253.4	0.00379	-0.00285
12	159.11	0.00220	114.99	0.00728	524.5	244.8	0.00454	-0.00345
13	170.97	0.00253	123.99	0.00877	537.3	236.1	0.00541	-0.00414
14	182.73	0.00292	132.86	0.01053	550.0	227.5	0.00643	-0.00497
15	194.10	0.00334	141.43	0.01253	562.2	219.2	0.00758	-0.00591
16	205.23	0.00383	149.69	0.01481	573.9	210.9	0.00890	-0.00699
17	216.15	0.00441	158.33	0.01752	585.6	202.2	0.01047	-0.00826
18	226.89	0.00510	166.63	0.02078	596.9	193.8	0.01235	-0.00980
19	236.87	0.00591	174.73	0.02465	607.7	185.5	0.01457	-0.01162
20	246.28	0.00691	182.78	0.02934	618.1	177.3	0.01729	-0.01383
21	255.82	0.00807	190.47	0.03473	628.4	169.6	0.02041	-0.01637
22	264.98	0.00948	197.72	0.04115	638.4	162.4	0.02414	-0.01940
23	273.25	0.01106	204.78	0.04795	647.9	155.6	0.02813	-0.02260
24	281.25	0.01298	212.04	0.05596	657.9	149.0	0.03287	-0.02638
25	288.71	0.01525	218.73	0.06538	667.5	143.4	0.03845	-0.03082
26	295.74	0.01783	225.40	0.07660	677.4	138.2	0.04502	-0.03611
27	302.31	0.02087	231.18	0.09009	686.6	134.2	0.05291	-0.04247
28	307.74	0.02415	235.91	0.10520	694.6	131.3	0.06167	-0.04959
29	313.33	0.02743	239.48	0.12110	702.0	129.6	0.07081	-0.05709
30	319.30	0.03071	242.50	0.13712	709.1	128.4	0.08000	-0.06465
31	324.11	0.03436	245.15	0.15372	715.1	127.4	0.08966	-0.07248
32	328.22	0.03821	247.09	0.17011	720.0	126.8	0.09931	-0.08020
33	332.27	0.04212	248.83	0.18541	724.7	126.3	0.10847	-0.08741
34	335.96	0.04689	250.59	0.20223	729.2	125.8	0.11878	-0.09533
35	339.50	0.05205	251.62	0.21896	732.9	125.9	0.12924	-0.10322
36	342.52	0.05815	252.05	0.23544	735.7	126.2	0.14008	-0.11100
37	344.90	0.06490	252.01	0.25092	737.5	126.7	0.15080	-0.11835
38	346.30	0.07256	251.08	0.26574	737.7	127.8	0.16172	-0.12544
39	346.40	0.07949	249.68	0.27698	736.6	128.9	0.17065	-0.13090
40	346.31	0.08216	249.08	0.28091	736.0	129.3	0.17392	-0.13284

Test Name: 3b\_12/28/89

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.949 (cm)  
Volume: 249.826 (cm<sup>3</sup>)  
Inner\_radius: 2.528 (cm)

Area: 19.273 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.540 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-0.02	-0.00003	482.30	0.00000	137.82	0.509	0.00064
3	-0.11	-0.00011	482.30	0.00000	137.86	1.065	0.00157
4	-0.01	-0.00047	482.30	0.00000	137.96	1.639	0.00287
5	1.09	-0.00098	482.30	0.00000	138.18	2.226	0.00453
6	1.68	-0.00188	482.30	0.00000	138.52	2.800	0.00661
7	2.24	-0.00330	482.30	0.00000	139.00	3.364	0.00917
8	2.69	-0.00514	482.30	0.00000	139.62	3.907	0.01218
9	3.47	-0.00744	482.30	0.00000	140.37	4.445	0.01575
10	3.44	-0.01011	482.30	0.00000	141.19	4.978	0.01981
11	1.71	-0.01353	482.30	0.00000	142.06	5.495	0.02464
12	-0.13	-0.01754	482.30	0.00000	142.96	6.004	0.03010
13	0.17	-0.02200	482.30	0.00000	144.11	6.500	0.03624
14	1.70	-0.02612	482.30	0.00000	145.31	6.996	0.04288
15	1.56	-0.03123	482.30	0.00000	146.50	7.492	0.05078
16	1.94	-0.03679	482.30	0.00000	147.61	7.982	0.05965
17	2.36	-0.04300	482.30	0.00000	148.72	8.470	0.06987
18	2.11	-0.04969	482.30	0.00000	149.78	8.923	0.08122
19	2.25	-0.05683	482.30	0.00000	150.71	9.386	0.09380
20	2.27	-0.06430	482.30	0.00000	151.47	9.821	0.10768
21	2.42	-0.07230	482.30	0.00000	152.10	10.269	0.12330
22	2.20	-0.08073	482.30	0.00000	152.56	10.683	0.14062
23	2.12	-0.08911	482.30	0.00000	152.85	11.090	0.15870
24	1.95	-0.09790	482.30	0.00000	152.93	11.502	0.17911
25	1.89	-0.10661	482.30	0.00000	152.73	11.884	0.20061
26	2.09	-0.11512	482.30	0.00000	152.16	12.245	0.22262
27	2.19	-0.12318	482.30	0.00000	151.44	12.589	0.24497
28	2.49	-0.13069	482.30	0.00000	150.51	12.912	0.26806
29	2.54	-0.13817	482.30	0.00000	149.42	13.211	0.29303
30	2.75	-0.14501	482.30	0.00000	148.23	13.487	0.31866
31	2.93	-0.15097	482.30	0.00000	147.02	13.728	0.34366
32	3.13	-0.15621	482.30	0.00000	145.91	13.935	0.36971
33	3.26	-0.16083	482.30	0.00000	144.89	14.089	0.39481
34	3.38	-0.16471	482.30	0.00000	144.00	14.224	0.41851
35	3.49	-0.16778	482.30	0.00000	143.24	14.339	0.44063
36	3.58	-0.17044	482.30	0.00000	142.62	14.433	0.46213
37	3.65	-0.17254	482.30	0.00000	142.14	14.506	0.48586
38	3.69	-0.17404	482.30	0.00000	141.79	14.559	0.51219
39	3.72	-0.17495	482.30	0.00000	141.58	14.591	0.52801
40	3.73	-0.17524	482.30	0.00000	141.51	14.601	0.53329

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-0.01	-0.00000	8.55	0.00015	353.0	335.9	0.00008	-0.00008
3	-0.06	-0.00001	17.87	0.00037	362.3	326.5	0.00018	-0.00019
4	-0.00	-0.00004	27.49	0.00068	371.8	316.8	0.00033	-0.00035
5	0.56	-0.00008	37.35	0.00107	381.8	307.1	0.00052	-0.00056
6	0.87	-0.00015	46.99	0.00156	391.2	297.2	0.00075	-0.00082
7	1.16	-0.00025	56.46	0.00217	400.3	287.4	0.00104	-0.00116
8	1.40	-0.00040	65.58	0.00288	409.0	277.8	0.00137	-0.00157
9	1.80	-0.00057	74.63	0.00372	417.5	268.2	0.00177	-0.00205
10	1.78	-0.00078	83.61	0.00468	425.6	258.4	0.00222	-0.00261
11	0.89	-0.00104	92.32	0.00582	433.0	248.4	0.00275	-0.00327
12	-0.07	-0.00135	100.93	0.00710	440.2	238.4	0.00336	-0.00403
13	0.09	-0.00170	109.33	0.00855	447.6	228.9	0.00404	-0.00488
14	0.89	-0.00202	117.71	0.01011	455.1	219.7	0.00477	-0.00578
15	0.81	-0.00241	126.13	0.01197	462.3	210.1	0.00565	-0.00685
16	1.01	-0.00284	134.47	0.01405	469.7	200.7	0.00663	-0.00805
17	1.22	-0.00332	142.79	0.01644	477.0	191.4	0.00776	-0.00942
18	1.10	-0.00383	150.56	0.01910	483.6	182.5	0.00901	-0.01093
19	1.17	-0.00438	158.49	0.02203	490.7	173.7	0.01040	-0.01259
20	1.18	-0.00495	165.97	0.02527	497.4	165.4	0.01193	-0.01441
21	1.26	-0.00557	173.72	0.02892	504.6	157.1	0.01366	-0.01644
22	1.15	-0.00622	180.89	0.03294	511.2	149.4	0.01557	-0.01867
23	1.10	-0.00686	187.97	0.03714	518.0	142.0	0.01756	-0.02099
24	1.02	-0.00753	195.14	0.04188	525.0	134.7	0.01981	-0.02357
25	0.99	-0.00820	201.82	0.04686	531.9	128.2	0.02217	-0.02627
26	1.09	-0.00885	208.16	0.05195	538.9	122.5	0.02460	-0.02902
27	1.15	-0.00947	214.21	0.05711	545.6	117.2	0.02706	-0.03179
28	1.30	-0.01004	219.90	0.06244	552.3	112.5	0.02961	-0.03463
29	1.33	-0.01061	225.18	0.06820	558.7	108.4	0.03236	-0.03767
30	1.44	-0.01114	230.06	0.07411	564.9	104.7	0.03520	-0.04077
31	1.53	-0.01159	234.34	0.07986	570.4	101.7	0.03797	-0.04377
32	1.64	-0.01199	238.01	0.08587	575.2	99.2	0.04087	-0.04686
33	1.71	-0.01234	240.77	0.09165	579.0	97.5	0.04366	-0.04984
34	1.78	-0.01264	243.19	0.09711	582.4	96.0	0.04631	-0.05263
35	1.83	-0.01287	245.24	0.10220	585.2	94.7	0.04879	-0.05522
36	1.88	-0.01308	246.92	0.10716	587.5	93.7	0.05120	-0.05774
37	1.91	-0.01324	248.24	0.11263	589.4	92.9	0.05388	-0.06049
38	1.94	-0.01335	249.18	0.11872	590.7	92.3	0.05686	-0.06353
39	1.96	-0.01342	249.74	0.12237	591.4	92.0	0.05865	-0.06536
40	1.96	-0.01344	249.93	0.12359	591.7	91.8	0.05925	-0.06597

Test Name: 5b\_11/13/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 60

Length: 12.998 (cm)  
Volume: 251.445 (cm<sup>3</sup>)  
Inner\_radius: 2.532 (cm)

Area: 19.324 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.544 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-11.43	-0.00042	482.30	0.00000	137.05	0.299	0.00051
3	-24.18	-0.00093	482.30	0.00000	136.31	0.652	0.00101
4	-34.85	-0.00159	482.30	0.00000	135.59	0.999	0.00159
5	-45.75	-0.00241	482.30	0.00000	134.86	1.326	0.00229
6	-58.24	-0.00361	482.30	0.00000	134.22	1.699	0.00353
7	-70.80	-0.00546	482.30	0.00000	133.69	2.048	0.00512
8	-83.38	-0.00829	482.30	0.00000	133.20	2.407	0.00726
9	-95.61	-0.01221	482.30	0.00000	132.82	2.756	0.00965
10	-107.86	-0.01722	482.30	0.00000	132.35	3.094	0.01254
11	-119.72	-0.02322	482.30	0.00000	132.34	3.399	0.01578
12	-131.09	-0.03029	482.30	0.00000	132.68	3.731	0.01977
13	-142.71	-0.03846	482.30	0.00000	133.22	4.028	0.02424
14	-155.42	-0.04777	482.30	0.00000	133.85	4.351	0.02941
15	-166.66	-0.05813	482.30	0.00000	134.51	4.689	0.03488
16	-177.69	-0.06958	482.30	0.00000	135.18	4.966	0.04087
17	-189.77	-0.08208	482.30	0.00000	135.81	5.296	0.04729
18	-201.51	-0.09569	482.30	0.00000	136.41	5.584	0.05459
19	-210.85	-0.11030	482.30	0.00000	137.00	5.898	0.06293
20	-219.81	-0.12594	482.30	0.00000	137.66	6.195	0.07226
21	-228.67	-0.14249	482.30	0.00000	138.24	6.434	0.08228
22	-237.59	-0.16010	482.30	0.00000	138.63	6.723	0.09352
23	-245.77	-0.17872	482.30	0.00000	138.72	6.975	0.10575
24	-252.93	-0.19785	482.30	0.00000	138.60	7.231	0.11818
25	-260.15	-0.21776	482.30	0.00000	138.41	7.466	0.13142
26	-267.81	-0.23821	482.30	0.00000	138.02	7.663	0.14653
27	-275.61	-0.25843	482.30	0.00000	137.64	7.827	0.16104
28	-282.16	-0.27825	482.30	0.00000	137.15	8.032	0.17578
29	-287.97	-0.29743	482.30	0.00000	136.60	8.236	0.19138
30	-292.43	-0.31628	482.30	0.00000	136.02	8.392	0.20604
31	-296.57	-0.33458	482.30	0.00000	135.46	8.541	0.22061
32	-300.43	-0.35179	482.30	0.00000	134.93	8.684	0.23457
33	-303.73	-0.36756	482.30	0.00000	134.47	8.804	0.24914
34	-306.99	-0.38213	482.30	0.00000	134.04	8.902	0.26377
35	-309.90	-0.39552	482.30	0.00000	133.72	8.967	0.27891
36	-312.18	-0.40652	482.30	0.00000	133.47	9.030	0.29303
37	-313.96	-0.41509	482.30	0.00000	133.27	9.081	0.31318
38	-315.23	-0.42122	482.30	0.00000	133.13	9.030	0.34404
39	-316.00	-0.42490	482.30	0.00000	133.05	8.962	0.39607
40	-316.25	-0.42613	482.30	0.00000	133.02	8.936	0.41837

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-5.91	-0.00003	5.00	0.00012	348.1	336.5	0.00006	-0.00007
3	-12.50	-0.00007	10.90	0.00024	352.3	327.2	0.00011	-0.00015
4	-18.01	-0.00012	16.69	0.00038	356.7	318.7	0.00018	-0.00024
5	-23.65	-0.00019	22.16	0.00054	360.7	310.5	0.00026	-0.00035
6	-30.11	-0.00028	28.40	0.00083	365.2	300.9	0.00040	-0.00053
7	-36.60	-0.00042	34.24	0.00121	369.1	291.5	0.00058	-0.00079
8	-43.12	-0.00064	40.27	0.00171	373.2	281.9	0.00082	-0.00114
9	-49.46	-0.00094	46.11	0.00227	377.1	272.4	0.00110	-0.00157
10	-55.82	-0.00132	51.80	0.00295	380.9	263.2	0.00145	-0.00211
11	-61.98	-0.00178	56.95	0.00371	383.8	254.1	0.00184	-0.00273
12	-67.90	-0.00233	62.57	0.00465	386.9	244.5	0.00232	-0.00349
13	-73.97	-0.00295	67.61	0.00569	389.2	235.0	0.00287	-0.00435
14	-80.61	-0.00367	73.10	0.00690	391.6	224.7	0.00350	-0.00533
15	-86.52	-0.00446	78.88	0.00817	394.5	214.6	0.00417	-0.00640
16	-92.32	-0.00534	83.64	0.00956	396.5	205.4	0.00490	-0.00757
17	-98.69	-0.00629	89.33	0.01105	399.2	195.1	0.00569	-0.00884
18	-104.91	-0.00733	94.34	0.01274	401.4	185.5	0.00658	-0.01025
19	-109.89	-0.00845	99.81	0.01466	404.3	176.4	0.00758	-0.01180
20	-114.70	-0.00964	105.02	0.01680	407.0	167.6	0.00867	-0.01349
21	-119.47	-0.01090	109.28	0.01909	408.9	159.8	0.00984	-0.01530
22	-124.30	-0.01224	114.42	0.02166	411.7	151.3	0.01114	-0.01726
23	-128.76	-0.01366	118.96	0.02444	414.5	143.9	0.01253	-0.01936
24	-132.70	-0.01511	123.59	0.02725	417.6	137.1	0.01394	-0.02150
25	-136.70	-0.01661	127.90	0.03024	420.5	130.5	0.01544	-0.02374
26	-140.94	-0.01816	131.58	0.03363	423.1	124.5	0.01710	-0.02618
27	-145.27	-0.01969	134.70	0.03688	425.1	119.0	0.01870	-0.02854
28	-148.94	-0.02118	138.53	0.04017	428.0	113.4	0.02031	-0.03090
29	-152.23	-0.02262	142.36	0.04364	431.0	108.2	0.02198	-0.03330
30	-154.81	-0.02404	145.36	0.04688	433.6	104.2	0.02356	-0.03558
31	-157.21	-0.02541	148.26	0.05009	436.0	100.4	0.02512	-0.03783
32	-159.46	-0.02670	151.03	0.05316	438.4	96.9	0.02660	-0.03996
33	-161.41	-0.02788	153.38	0.05636	440.4	93.8	0.02812	-0.04206
34	-163.32	-0.02897	155.36	0.05957	442.1	91.1	0.02963	-0.04411
35	-165.03	-0.02997	156.71	0.06290	443.2	89.0	0.03116	-0.04615
36	-166.38	-0.03080	158.02	0.06600	444.2	87.1	0.03258	-0.04798
37	-167.43	-0.03143	159.07	0.07047	445.1	85.6	0.03454	-0.05025
38	-168.19	-0.03189	158.27	0.07736	444.3	85.8	0.03751	-0.05345
39	-168.64	-0.03217	157.15	0.08903	443.3	86.6	0.04259	-0.05867
40	-168.79	-0.03226	156.71	0.09403	442.9	86.9	0.04481	-0.06094

Test Name: 4b\_12/20/89

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 90

Length: 12.807 (cm)  
Volume: 247.455 (cm<sup>3</sup>)  
Inner\_radius: 2.530 (cm)

Area: 19.302 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.542 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-33.00	-0.00123	482.30	0.00000	135.53	0.000	0.00000
3	-67.18	-0.00291	482.30	0.00000	132.63	0.000	0.00000
4	-100.35	-0.00657	482.30	0.00000	129.69	0.000	0.00000
5	-132.33	-0.01493	482.30	0.00000	127.37	0.000	0.00000
6	-165.15	-0.02859	482.30	0.00000	126.04	0.000	0.00000
7	-197.83	-0.04605	482.30	0.00000	125.38	0.000	0.00000
8	-231.09	-0.06671	482.30	0.00000	125.09	0.000	0.00000
9	-262.21	-0.08961	482.30	0.00000	124.83	0.000	0.00000
10	-292.88	-0.11420	482.30	0.00000	124.52	0.000	0.00000
11	-321.79	-0.13924	482.30	0.00000	123.89	0.000	0.00000
12	-350.72	-0.16785	482.30	0.00000	122.65	0.000	0.00000
13	-379.36	-0.20024	482.30	0.00000	120.82	0.000	0.00000
14	-407.24	-0.23685	482.30	0.00000	118.53	0.000	0.00000
15	-435.15	-0.27568	482.30	0.00000	115.65	0.000	0.00000
16	-462.28	-0.31791	482.30	0.00000	112.22	0.000	0.00000
17	-488.34	-0.36258	482.30	0.00000	108.36	0.000	0.00000
18	-512.68	-0.40844	482.30	0.00000	104.16	0.000	0.00000
19	-535.95	-0.45568	482.30	0.00000	99.67	0.000	0.00000
20	-558.11	-0.50548	482.30	0.00000	95.05	0.000	0.00000
21	-579.52	-0.55672	482.30	0.00000	90.44	0.000	0.00000
22	-600.18	-0.60870	482.30	0.00000	85.83	0.000	0.00000
23	-619.77	-0.65801	482.30	0.00000	81.20	0.000	0.00000
24	-638.45	-0.70793	482.30	0.00000	76.48	0.000	0.00000
25	-655.21	-0.76208	482.30	0.00000	71.73	0.000	0.00000
26	-671.06	-0.81509	482.30	0.00000	67.24	0.000	0.00000
27	-685.45	-0.87063	482.30	0.00000	63.10	0.000	0.00000
28	-698.39	-0.92878	482.30	0.00000	59.35	0.000	0.00000
29	-709.81	-0.97904	482.30	0.00000	56.17	0.000	0.00000
30	-720.17	-1.02524	482.30	0.00000	53.53	0.000	0.00000
31	-729.53	-1.07009	482.30	0.00000	51.03	0.000	0.00000
32	-737.95	-1.11308	482.30	0.00000	48.71	0.000	0.00000
33	-745.85	-1.15577	482.30	0.00000	46.52	0.000	0.00000
34	-752.20	-1.19492	482.30	0.00000	44.58	0.000	0.00000
35	-756.99	-1.22974	482.30	0.00000	42.94	0.000	0.00000
36	-760.69	-1.26295	482.30	0.00000	41.37	0.000	0.00000
37	-762.90	-1.29770	482.30	0.00000	39.89	0.000	0.00000
38	-763.19	-1.32839	482.30	0.00000	38.55	0.000	0.00000
39	-762.77	-1.35817	482.30	0.00000	37.70	0.000	0.00000
40	-762.63	-1.40515	482.30	0.00000	37.42	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-17.08	-0.00010	0.00	0.00000	346.8	329.7	0.00005	-0.00010
3	-34.76	-0.00023	0.00	0.00000	349.7	314.9	0.00011	-0.00023
4	-51.94	-0.00051	0.00	0.00000	352.6	300.7	0.00026	-0.00051
5	-68.54	-0.00116	0.00	0.00000	354.9	286.4	0.00058	-0.00116
6	-85.64	-0.00223	0.00	0.00000	356.3	270.6	0.00112	-0.00223
7	-102.72	-0.00359	0.00	0.00000	356.9	254.2	0.00179	-0.00359
8	-120.19	-0.00520	0.00	0.00000	357.2	237.0	0.00260	-0.00520
9	-136.61	-0.00697	0.00	0.00000	357.5	220.9	0.00349	-0.00697
10	-152.88	-0.00888	0.00	0.00000	357.8	204.9	0.00444	-0.00888
11	-168.30	-0.01081	0.00	0.00000	358.4	190.1	0.00541	-0.01081
12	-183.83	-0.01302	0.00	0.00000	359.6	175.8	0.00651	-0.01302
13	-199.34	-0.01551	0.00	0.00000	361.5	162.1	0.00776	-0.01551
14	-214.59	-0.01833	0.00	0.00000	363.8	149.2	0.00916	-0.01833
15	-229.98	-0.02130	0.00	0.00000	366.6	136.7	0.01065	-0.02130
16	-245.11	-0.02452	0.00	0.00000	370.1	125.0	0.01226	-0.02452
17	-259.81	-0.02792	0.00	0.00000	373.9	114.1	0.01396	-0.02792
18	-273.71	-0.03139	0.00	0.00000	378.1	104.4	0.01570	-0.03139
19	-287.16	-0.03496	0.00	0.00000	382.6	95.5	0.01748	-0.03496
20	-300.15	-0.03871	0.00	0.00000	387.2	87.1	0.01936	-0.03871
21	-312.87	-0.04255	0.00	0.00000	391.9	79.0	0.02128	-0.04255
22	-325.28	-0.04644	0.00	0.00000	396.5	71.2	0.02322	-0.04644
23	-337.13	-0.05010	0.00	0.00000	401.1	64.0	0.02505	-0.05010
24	-348.58	-0.05380	0.00	0.00000	405.8	57.2	0.02690	-0.05380
25	-359.17	-0.05780	0.00	0.00000	410.6	51.4	0.02890	-0.05780
26	-369.29	-0.06170	0.00	0.00000	415.1	45.8	0.03085	-0.06170
27	-378.75	-0.06577	0.00	0.00000	419.2	40.5	0.03289	-0.06577
28	-387.54	-0.07001	0.00	0.00000	422.9	35.4	0.03501	-0.07001
29	-395.32	-0.07367	0.00	0.00000	426.1	30.8	0.03683	-0.07367
30	-402.43	-0.07701	0.00	0.00000	428.8	26.3	0.03851	-0.07701
31	-408.98	-0.08025	0.00	0.00000	431.3	22.3	0.04012	-0.08025
32	-414.98	-0.08334	0.00	0.00000	433.6	18.6	0.04167	-0.08334
33	-420.71	-0.08640	0.00	0.00000	435.8	15.1	0.04320	-0.08640
34	-425.48	-0.08920	0.00	0.00000	437.7	12.2	0.04460	-0.08920
35	-429.26	-0.09169	0.00	0.00000	439.4	10.1	0.04584	-0.09169
36	-432.38	-0.09405	0.00	0.00000	440.9	8.5	0.04703	-0.09405
37	-434.71	-0.09652	0.00	0.00000	442.4	7.7	0.04826	-0.09652
38	-435.82	-0.09869	0.00	0.00000	443.8	7.9	0.04935	-0.09869
39	-436.50	-0.10080	0.00	0.00000	444.6	8.1	0.05040	-0.10080
40	-437.86	-0.10411	0.00	0.00000	444.9	7.0	0.05205	-0.10411



Test Name: 36\_02/15/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
552 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 0

Length: 13.111 (cm)  
Volume: 252.447 (cm<sup>3</sup>)  
Inner\_radius: 2.526 (cm)

Area: 19.234 (cm<sup>2</sup>)  
ECP: 551.200 (kPa)  
Outter\_radius: 3.536 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	654.55	0.00000	103.35	0.000	0.00000
2	52.25	0.00117	654.55	0.00000	104.10	0.000	0.00000
3	109.36	0.00278	654.55	0.00000	106.22	0.000	0.00000
4	170.82	0.00496	654.55	0.00000	109.20	0.000	0.00000
5	234.97	0.00769	654.55	0.00000	112.78	0.000	0.00000
6	297.82	0.01093	654.55	0.00000	116.72	0.000	0.00000
7	361.08	0.01469	654.55	0.00000	121.20	0.000	0.00000
8	423.84	0.01903	654.55	0.00000	126.16	0.000	0.00000
9	485.86	0.02382	654.55	0.00000	131.48	0.000	0.00000
10	545.44	0.02910	654.55	0.00000	137.08	0.000	0.00000
11	604.66	0.03480	654.55	0.00000	142.85	0.000	0.00000
12	662.77	0.04077	654.55	0.00000	148.78	0.000	0.00000
13	716.12	0.04716	654.55	0.00000	154.73	0.000	0.00000
14	770.79	0.05391	654.55	0.00000	160.61	0.000	0.00000
15	826.57	0.06116	654.55	0.00000	166.28	0.000	0.00000
16	880.03	0.06873	654.55	0.00000	171.87	0.000	0.00000
17	930.98	0.07649	654.55	0.00000	177.22	0.000	0.00000
18	982.13	0.08484	654.55	0.00000	182.53	0.000	0.00000
19	1032.45	0.09356	654.55	0.00000	187.67	0.000	0.00000
20	1079.05	0.10271	654.55	0.00000	192.64	0.000	0.00000
21	1125.60	0.11246	654.55	0.00000	197.57	0.000	0.00000
22	1170.23	0.12257	654.55	0.00000	202.28	0.000	0.00000
23	1212.95	0.13364	654.55	0.00000	207.12	0.000	0.00000
24	1253.54	0.14562	654.55	0.00000	211.85	0.000	0.00000
25	1290.86	0.15885	654.55	0.00000	216.47	0.000	0.00000
26	1329.01	0.17386	654.55	0.00000	220.97	0.000	0.00000
27	1361.72	0.19191	654.55	0.00000	225.33	0.000	0.00000
28	1395.10	0.21294	654.55	0.00000	229.68	0.000	0.00000
29	1426.68	0.23892	654.55	0.00000	234.18	0.000	0.00000
30	1453.37	0.26891	654.55	0.00000	238.60	0.000	0.00000
31	1480.00	0.30423	654.55	0.00000	243.12	0.000	0.00000
32	1505.98	0.34760	654.55	0.00000	247.67	0.000	0.00000
33	1527.72	0.39694	654.55	0.00000	252.06	0.000	0.00000
34	1549.65	0.45080	654.55	0.00000	256.24	0.000	0.00000
35	1571.11	0.51031	654.55	0.00000	260.09	0.000	0.00000
36	1588.78	0.57398	654.55	0.00000	263.57	0.000	0.00000
37	1606.04	0.63985	654.55	0.00000	266.52	0.000	0.00000
38	1620.50	0.71072	654.55	0.00000	268.81	0.000	0.00000
39	1626.02	1.06961	654.55	0.00000	270.52	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	551.2	551.2	0.00000	0.00000
2	27.12	0.00009	0.00	0.00000	577.6	550.5	0.00009	-0.00004
3	56.77	0.00021	0.00	0.00000	605.1	548.3	0.00021	-0.00011
4	88.66	0.00038	0.00	0.00000	634.0	545.3	0.00038	-0.00019
5	121.93	0.00059	0.00	0.00000	663.7	541.8	0.00059	-0.00029
6	154.51	0.00083	0.00	0.00000	692.3	537.8	0.00083	-0.00042
7	187.27	0.00112	0.00	0.00000	720.6	533.4	0.00112	-0.00056
8	219.75	0.00145	0.00	0.00000	748.1	528.4	0.00145	-0.00073
9	251.81	0.00182	0.00	0.00000	774.9	523.1	0.00182	-0.00091
10	282.57	0.00222	0.00	0.00000	800.0	517.5	0.00222	-0.00111
11	313.12	0.00266	0.00	0.00000	824.8	511.7	0.00266	-0.00133
12	343.05	0.00311	0.00	0.00000	848.8	505.8	0.00311	-0.00156
13	370.48	0.00360	0.00	0.00000	870.3	499.8	0.00360	-0.00180
14	398.57	0.00412	0.00	0.00000	892.5	493.9	0.00412	-0.00206
15	427.17	0.00468	0.00	0.00000	915.4	488.3	0.00468	-0.00234
16	454.53	0.00526	0.00	0.00000	937.2	482.7	0.00526	-0.00263
17	480.57	0.00585	0.00	0.00000	957.9	477.3	0.00585	-0.00293
18	506.64	0.00649	0.00	0.00000	978.7	472.0	0.00649	-0.00325
19	532.24	0.00716	0.00	0.00000	999.1	466.9	0.00716	-0.00358
20	555.87	0.00786	0.00	0.00000	1017.8	461.9	0.00786	-0.00393
21	579.42	0.00861	0.00	0.00000	1036.4	457.0	0.00861	-0.00431
22	601.93	0.00939	0.00	0.00000	1054.2	452.3	0.00939	-0.00470
23	623.37	0.01024	0.00	0.00000	1070.8	447.4	0.01024	-0.00512
24	643.63	0.01117	0.00	0.00000	1086.3	442.7	0.01117	-0.00558
25	662.12	0.01219	0.00	0.00000	1100.2	438.1	0.01219	-0.00609
26	680.90	0.01335	0.00	0.00000	1114.5	433.6	0.01335	-0.00667
27	696.68	0.01475	0.00	0.00000	1125.9	429.2	0.01475	-0.00737
28	712.60	0.01637	0.00	0.00000	1137.5	424.9	0.01637	-0.00819
29	727.26	0.01839	0.00	0.00000	1147.6	420.4	0.01839	-0.00920
30	739.14	0.02072	0.00	0.00000	1155.1	416.0	0.02072	-0.01036
31	750.62	0.02348	0.00	0.00000	1162.1	411.4	0.02348	-0.01174
32	761.20	0.02687	0.00	0.00000	1168.1	406.9	0.02687	-0.01343
33	769.21	0.03074	0.00	0.00000	1171.7	402.5	0.03074	-0.01537
34	776.94	0.03499	0.00	0.00000	1175.2	398.3	0.03499	-0.01749
35	784.00	0.03970	0.00	0.00000	1178.5	394.5	0.03970	-0.01985
36	788.81	0.04476	0.00	0.00000	1179.8	391.0	0.04476	-0.02238
37	793.19	0.05003	0.00	0.00000	1181.2	388.0	0.05003	-0.02502
38	795.79	0.05573	0.00	0.00000	1181.5	385.7	0.05573	-0.02787
39	775.39	0.08510	0.00	0.00000	1159.4	384.0	0.08510	-0.04255

Test Name: 37\_02/19/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
552 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 30

Length: 13.213 (cm)  
Volume: 254.148 (cm<sup>3</sup>)  
Inner\_radius: 2.524 (cm)

Area: 19.215 (cm<sup>2</sup>)  
ECP: 551.200 (kPa)  
Outter\_radius: 3.534 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	654.55	0.00000	103.35	0.000	0.00000
2	32.21	0.00080	654.55	0.00000	104.12	0.707	0.00058
3	64.62	0.00169	654.55	0.00000	105.54	1.456	0.00128
4	98.28	0.00282	654.55	0.00000	107.42	2.211	0.00193
5	130.61	0.00414	654.55	0.00000	109.79	2.975	0.00293
6	162.86	0.00573	654.55	0.00000	112.60	3.761	0.00406
7	197.39	0.00763	654.55	0.00000	116.01	4.573	0.00560
8	230.06	0.00971	654.55	0.00000	119.72	5.346	0.00737
9	260.91	0.01199	654.55	0.00000	123.80	6.078	0.00937
10	290.73	0.01447	654.55	0.00000	128.23	6.776	0.01175
11	323.62	0.01730	654.55	0.00000	133.12	7.543	0.01488
12	354.68	0.02027	654.55	0.00000	138.26	8.263	0.01848
13	387.15	0.02350	654.55	0.00000	143.44	9.031	0.02227
14	415.72	0.02702	654.55	0.00000	149.01	9.768	0.02661
15	445.52	0.03084	654.55	0.00000	154.81	10.538	0.03171
16	474.06	0.03506	654.55	0.00000	160.98	11.232	0.03777
17	500.21	0.03961	654.55	0.00000	167.27	11.901	0.04490
18	526.69	0.04463	654.55	0.00000	173.64	12.509	0.05221
19	551.51	0.05024	654.55	0.00000	180.05	13.145	0.06076
20	577.51	0.05687	654.55	0.00000	186.66	13.778	0.07217
21	601.07	0.06457	654.55	0.00000	193.49	14.434	0.08481
22	625.30	0.07300	654.55	0.00000	200.34	15.017	0.09782
23	646.11	0.08290	654.55	0.00000	207.08	15.525	0.11280
24	667.55	0.09471	654.55	0.00000	213.74	16.087	0.13024
25	687.19	0.10862	654.55	0.00000	220.14	16.617	0.15033
26	705.51	0.12340	654.55	0.00000	226.07	17.109	0.17102
27	722.85	0.14085	654.55	0.00000	231.57	17.538	0.19429
28	741.76	0.16125	654.55	0.00000	236.57	18.034	0.22088
29	756.70	0.18396	654.55	0.00000	240.87	18.444	0.25009
30	772.47	0.20862	654.55	0.00000	244.63	18.873	0.28051
31	784.63	0.23510	654.55	0.00000	247.68	19.261	0.31227
32	798.27	0.26241	654.55	0.00000	250.16	19.587	0.34397
33	811.78	0.28998	654.55	0.00000	252.15	19.934	0.37514
34	818.77	0.31670	654.55	0.00000	253.41	20.163	0.40504
35	827.67	0.34008	654.55	0.00000	254.47	20.393	0.43032
36	837.16	0.36302	654.55	0.00000	255.20	20.625	0.45607
37	843.32	0.38541	654.55	0.00000	255.70	20.780	0.47924
38	850.41	0.42641	654.55	0.00000	256.08	20.767	0.50979

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	551.2	551.2	0.00000	0.00000
2	16.74	0.00006	11.91	0.00013	573.4	544.2	0.00010	-0.00007
3	33.58	0.00013	24.53	0.00030	595.5	536.1	0.00021	-0.00014
4	51.07	0.00021	37.25	0.00045	617.8	527.5	0.00033	-0.00022
5	67.86	0.00031	50.12	0.00068	639.2	518.2	0.00049	-0.00033
6	84.61	0.00043	63.34	0.00094	660.4	508.1	0.00068	-0.00046
7	102.53	0.00058	76.99	0.00130	682.3	497.3	0.00092	-0.00064
8	119.48	0.00073	90.00	0.00171	702.6	486.6	0.00120	-0.00083
9	135.48	0.00091	102.30	0.00217	721.2	475.8	0.00151	-0.00105
10	150.94	0.00110	114.00	0.00272	738.5	465.1	0.00186	-0.00132
11	167.98	0.00131	126.87	0.00345	757.6	453.3	0.00231	-0.00166
12	184.06	0.00154	138.94	0.00429	775.0	441.7	0.00282	-0.00205
13	200.86	0.00178	151.78	0.00517	793.5	429.5	0.00335	-0.00246
14	215.62	0.00205	164.12	0.00618	809.7	417.0	0.00396	-0.00294
15	231.01	0.00234	176.98	0.00736	826.6	403.9	0.00466	-0.00349
16	245.73	0.00266	188.54	0.00877	841.5	391.4	0.00548	-0.00415
17	259.20	0.00300	199.67	0.01043	854.9	378.8	0.00643	-0.00493
18	272.82	0.00338	209.74	0.01214	867.5	367.1	0.00743	-0.00573
19	285.55	0.00381	220.27	0.01414	879.8	354.8	0.00858	-0.00667
20	298.87	0.00431	230.70	0.01681	892.2	342.5	0.01008	-0.00793
21	310.87	0.00490	241.47	0.01977	903.7	329.3	0.01177	-0.00932
22	323.20	0.00554	250.98	0.02282	914.3	317.3	0.01353	-0.01076
23	333.71	0.00629	259.18	0.02635	922.6	306.1	0.01557	-0.01242
24	344.47	0.00719	268.19	0.03046	931.8	294.3	0.01796	-0.01436
25	354.23	0.00825	276.59	0.03522	940.0	283.1	0.02073	-0.01660
26	363.26	0.00938	284.30	0.04013	947.5	272.7	0.02361	-0.01892
27	371.69	0.01072	290.85	0.04568	954.0	263.7	0.02689	-0.02154
28	380.82	0.01228	298.37	0.05206	962.3	254.4	0.03068	-0.02454
29	387.82	0.01402	304.36	0.05910	968.5	246.7	0.03487	-0.02786
30	395.15	0.01592	310.56	0.06647	975.6	239.4	0.03929	-0.03134
31	400.55	0.01795	315.98	0.07423	981.2	233.0	0.04397	-0.03499
32	406.66	0.02006	320.31	0.08202	987.1	228.3	0.04870	-0.03867
33	412.66	0.02219	324.95	0.08974	993.6	223.8	0.05340	-0.04231
34	415.35	0.02426	327.66	0.09719	996.7	220.9	0.05796	-0.04583
35	419.10	0.02608	330.50	0.10354	1001.0	218.3	0.06186	-0.04882
36	423.15	0.02786	333.36	0.11003	1005.8	216.1	0.06581	-0.05188
37	425.53	0.02960	335.00	0.11592	1008.5	214.8	0.06947	-0.05467
38	427.73	0.03280	333.17	0.12391	1008.2	216.4	0.07486	-0.05846

Test Name: 38\_02/21/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
552 kPa

Length: 13.086 (cm)  
Volume: 251.779 (cm<sup>3</sup>)  
Inner\_radius: 2.525 (cm)

Area: 19.220 (cm<sup>2</sup>)  
ECP: 551.200 (kPa)  
Outter\_radius: 3.535 (cm)

	Axial Force (N)	Axial Defor. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	654.55	0.00000	103.35	0.000	0.00000
2	1.59	-0.00003	654.49	0.00000	103.29	0.588	0.00059
3	3.64	-0.00018	654.33	0.00000	103.13	1.261	0.00112
4	4.12	-0.00028	654.27	0.00000	103.07	1.965	0.00177
5	4.62	-0.00069	654.31	0.00000	103.11	2.668	0.00279
6	5.74	-0.00123	654.66	0.00000	103.46	3.403	0.00391
7	6.77	-0.00212	655.29	0.00000	104.09	4.133	0.00533
8	7.15	-0.00322	656.23	0.00000	105.03	4.864	0.00723
9	7.97	-0.00472	657.55	0.00000	106.35	5.591	0.00956
10	9.14	-0.00659	659.09	0.00000	107.89	6.324	0.01239
11	9.40	-0.00892	660.94	0.00000	109.74	7.049	0.01562
12	9.66	-0.01164	663.19	0.00000	111.99	7.754	0.01937
13	10.04	-0.01477	665.72	0.00000	114.52	8.467	0.02378
14	10.26	-0.01840	668.49	0.00000	117.29	9.149	0.02886
15	10.31	-0.02225	671.41	0.00000	120.21	9.817	0.03436
16	10.32	-0.02660	674.47	0.00000	123.27	10.453	0.04055
17	10.29	-0.03135	677.71	0.00000	126.51	11.059	0.04758
18	10.00	-0.03674	681.02	0.00000	129.82	11.686	0.05561
19	10.06	-0.04267	684.47	0.00000	133.27	12.295	0.06460
20	9.73	-0.04902	687.97	0.00000	136.77	12.892	0.07469
21	8.93	-0.05571	691.37	0.00000	140.17	13.460	0.08568
22	8.80	-0.06302	694.79	0.00000	143.59	13.974	0.09789
23	8.86	-0.07038	697.99	0.00000	146.79	14.449	0.11079
24	8.70	-0.07746	700.97	0.00000	149.77	14.984	0.12370
25	8.28	-0.08594	703.55	0.00000	152.35	15.442	0.14036
26	8.20	-0.09536	705.91	0.00000	154.72	15.967	0.15961
27	7.90	-0.10451	708.29	0.00000	157.09	16.340	0.17864
28	7.77	-0.11393	710.16	0.00000	158.96	16.776	0.19917
29	7.56	-0.12299	711.84	0.00000	160.64	17.113	0.22048
30	7.56	-0.13095	713.27	0.00000	162.07	17.387	0.24092
31	7.82	-0.13830	714.24	0.00000	163.05	17.710	0.26180
32	8.27	-0.14521	715.04	0.00000	163.84	17.985	0.28338
33	9.12	-0.15187	715.62	0.00000	164.42	18.276	0.30581
34	10.56	-0.15768	716.03	0.00000	164.83	18.480	0.32935
35	12.29	-0.16054	716.48	0.00000	165.28	18.608	0.35199
36	14.55	-0.15978	716.83	0.00000	165.63	18.718	0.37669
37	16.90	-0.15236	717.01	0.00000	165.81	18.825	0.41351
38	19.68	-0.12915	717.08	0.00000	165.87	18.548	0.47686

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	551.2	551.2	0.00000	0.00000
2	0.83	-0.00000	9.91	0.00014	561.5	541.7	0.00007	-0.00007
3	1.89	-0.00001	21.25	0.00026	573.4	530.9	0.00013	-0.00014
4	2.14	-0.00002	33.11	0.00041	585.4	519.1	0.00020	-0.00021
5	2.40	-0.00005	44.95	0.00065	597.4	507.4	0.00032	-0.00034
6	2.98	-0.00009	57.34	0.00091	610.1	495.3	0.00044	-0.00049
7	3.52	-0.00016	69.64	0.00124	622.6	483.3	0.00059	-0.00067
8	3.72	-0.00025	81.97	0.00169	635.0	471.1	0.00080	-0.00093
9	4.14	-0.00036	94.23	0.00223	647.5	459.0	0.00106	-0.00124
10	4.75	-0.00050	106.60	0.00289	660.2	446.9	0.00137	-0.00162
11	4.89	-0.00068	118.86	0.00365	672.5	434.8	0.00172	-0.00206
12	5.02	-0.00089	130.79	0.00452	684.5	422.9	0.00213	-0.00258
13	5.22	-0.00113	142.87	0.00555	696.7	410.9	0.00262	-0.00318
14	5.34	-0.00141	154.43	0.00673	708.3	399.4	0.00317	-0.00388
15	5.37	-0.00170	165.78	0.00801	719.7	388.1	0.00378	-0.00463
16	5.38	-0.00203	176.62	0.00945	730.5	377.2	0.00445	-0.00547
17	5.36	-0.00239	186.97	0.01108	740.9	366.9	0.00522	-0.00642
18	5.21	-0.00280	197.69	0.01294	751.5	356.1	0.00610	-0.00750
19	5.25	-0.00326	208.13	0.01502	762.0	345.7	0.00708	-0.00871
20	5.08	-0.00374	218.38	0.01736	772.1	335.3	0.00818	-0.01005
21	4.66	-0.00425	228.19	0.01989	781.7	325.3	0.00938	-0.01151
22	4.60	-0.00480	237.10	0.02271	790.6	316.4	0.01071	-0.01311
23	4.63	-0.00536	245.35	0.02568	798.9	308.1	0.01212	-0.01480
24	4.55	-0.00590	254.65	0.02865	808.1	298.8	0.01352	-0.01647
25	4.33	-0.00655	262.68	0.03248	816.1	290.7	0.01533	-0.01860
26	4.29	-0.00726	271.92	0.03689	825.3	281.4	0.01742	-0.02105
27	4.14	-0.00795	278.55	0.04125	831.8	274.7	0.01948	-0.02346
28	4.07	-0.00867	286.29	0.04594	839.5	266.9	0.02170	-0.02604
29	3.97	-0.00935	292.34	0.05080	845.5	260.8	0.02401	-0.02869
30	3.97	-0.00996	297.30	0.05546	850.5	255.9	0.02623	-0.03121
31	4.10	-0.01051	303.08	0.06022	856.3	250.2	0.02850	-0.03375
32	4.35	-0.01104	308.01	0.06513	861.4	245.4	0.03084	-0.03636
33	4.79	-0.01154	313.24	0.07023	866.8	240.3	0.03328	-0.03905
34	5.55	-0.01198	316.94	0.07559	870.9	237.0	0.03585	-0.04184
35	6.47	-0.01219	319.24	0.08076	873.7	235.2	0.03835	-0.04445
36	7.65	-0.01214	321.11	0.08643	876.2	233.9	0.04113	-0.04720
37	8.88	-0.01158	322.67	0.09496	878.3	232.9	0.04537	-0.05116
38	10.32	-0.00982	317.08	0.10980	873.5	239.2	0.05294	-0.05785

Test Name: 40\_03/05/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
552 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 60

Length: 13.114 (cm)  
Volume: 252.325 (cm<sup>3</sup>)  
Inner\_radius: 2.525 (cm)

Area: 19.221 (cm<sup>2</sup>)  
ECP: 551.200 (kPa)  
Outter\_radius: 3.535 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	654.55	0.00000	103.35	0.000	0.00000
2	-15.79	-0.00021	654.55	0.00000	102.86	0.497	0.00003
3	-34.33	-0.00113	654.55	0.00000	101.88	1.025	0.00006
4	-51.74	-0.00212	654.55	0.00000	100.83	1.577	0.00223
5	-72.03	-0.00378	654.55	0.00000	99.92	2.160	0.00149
6	-87.50	-0.00638	654.55	0.00000	99.35	2.691	0.00351
7	-104.24	-0.01019	654.55	0.00000	98.89	3.272	0.00747
8	-123.02	-0.01576	654.55	0.00000	98.55	3.765	0.00844
9	-140.63	-0.02133	654.55	0.00000	98.58	4.318	0.01305
10	-157.65	-0.02892	654.55	0.00000	98.96	4.827	0.01702
11	-174.15	-0.03750	654.55	0.00000	99.63	5.356	0.02022
12	-193.32	-0.04742	654.55	0.00000	100.61	5.920	0.02817
13	-208.75	-0.05852	654.55	0.00000	101.92	6.429	0.03235
14	-224.11	-0.07041	654.55	0.00000	103.32	6.954	0.03972
15	-241.70	-0.08360	654.55	0.00000	104.80	7.463	0.04721
16	-256.47	-0.09713	654.55	0.00000	106.50	7.892	0.05289
17	-272.13	-0.11207	654.55	0.00000	108.10	8.388	0.06132
18	-286.21	-0.12693	654.55	0.00000	109.96	8.798	0.06686
19	-298.62	-0.14295	654.55	0.00000	111.50	9.221	0.07538
20	-313.07	-0.16074	654.55	0.00000	112.84	9.660	0.08449
21	-323.37	-0.17961	654.55	0.00000	113.87	10.059	0.09552
22	-338.15	-0.19899	654.55	0.00000	114.74	10.473	0.10772
23	-348.13	-0.21949	654.55	0.00000	115.32	10.843	0.11950
24	-360.64	-0.23992	654.55	0.00000	115.82	11.146	0.12987
25	-370.51	-0.26131	654.55	0.00000	116.00	11.537	0.14298
26	-380.52	-0.28292	654.55	0.00000	115.98	11.856	0.15584
27	-391.78	-0.30654	654.55	0.00000	115.61	12.163	0.17002
28	-397.51	-0.32820	654.55	0.00000	115.27	12.461	0.18479
29	-405.60	-0.35015	654.55	0.00000	114.66	12.731	0.19899
30	-412.74	-0.37257	654.55	0.00000	113.86	12.986	0.21631
31	-417.45	-0.39272	654.55	0.00000	113.15	13.166	0.22842
32	-423.42	-0.41126	654.55	0.00000	112.36	13.359	0.24412
33	-429.41	-0.42916	654.55	0.00000	111.50	13.524	0.25648
34	-435.74	-0.44564	654.55	0.00000	110.69	13.554	0.27118
35	-438.63	-0.46137	654.55	0.00000	109.93	13.749	0.28784
36	-438.87	-0.47576	654.55	0.00000	109.34	13.787	0.31151
37	-441.71	-0.48786	654.55	0.00000	108.94	13.767	0.34437
38	-442.50	-0.49826	654.55	0.00000	108.67	13.704	0.38260
39	-440.80	-0.50824	654.55	0.00000	108.57	13.494	0.43909
40	-438.24	-0.51540	654.55	0.00000	108.58	13.089	0.50536

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	551.2	551.2	0.00000	0.00000
2	-8.21	-0.00002	8.36	0.00001	556.9	538.3	0.00001	-0.00002
3	-17.84	-0.00009	17.27	0.00002	563.2	524.3	0.00004	-0.00009
4	-26.89	-0.00016	26.57	0.00052	570.1	510.5	0.00025	-0.00033
5	-37.43	-0.00029	36.40	0.00035	576.8	495.0	0.00020	-0.00035
6	-45.49	-0.00049	45.36	0.00082	583.2	481.7	0.00043	-0.00067
7	-54.20	-0.00078	55.18	0.00174	590.0	467.1	0.00085	-0.00124
8	-63.99	-0.00120	63.53	0.00197	595.1	452.9	0.00103	-0.00163
9	-73.18	-0.00163	72.91	0.00304	601.0	437.8	0.00154	-0.00235
10	-82.09	-0.00220	81.57	0.00396	605.9	423.2	0.00203	-0.00313
11	-90.74	-0.00286	90.60	0.00469	610.9	408.2	0.00246	-0.00389
12	-100.81	-0.00361	100.26	0.00653	615.7	391.3	0.00334	-0.00514
13	-108.95	-0.00445	109.02	0.00749	620.0	376.3	0.00391	-0.00613
14	-117.06	-0.00535	118.08	0.00919	624.5	360.9	0.00476	-0.00744
15	-126.38	-0.00635	126.91	0.01090	628.3	344.8	0.00565	-0.00883
16	-134.24	-0.00738	134.42	0.01220	631.2	330.7	0.00639	-0.01008
17	-142.60	-0.00851	143.11	0.01412	635.0	315.3	0.00739	-0.01164
18	-150.15	-0.00963	150.35	0.01537	637.6	301.5	0.00814	-0.01295
19	-156.84	-0.01084	157.87	0.01729	640.9	288.4	0.00916	-0.01458
20	-164.65	-0.01218	165.71	0.01934	644.4	274.3	0.01026	-0.01635
21	-170.31	-0.01360	172.92	0.02182	648.3	262.8	0.01154	-0.01834
22	-178.36	-0.01506	180.44	0.02456	651.9	249.4	0.01292	-0.02045
23	-183.91	-0.01660	187.24	0.02718	655.9	238.7	0.01428	-0.02258
24	-190.81	-0.01813	192.91	0.02947	658.5	228.1	0.01552	-0.02458
25	-196.34	-0.01973	200.16	0.03237	663.3	217.4	0.01700	-0.02686
26	-201.97	-0.02134	206.20	0.03519	667.2	208.0	0.01845	-0.02912
27	-208.32	-0.02311	212.10	0.03830	671.1	198.5	0.02005	-0.03160
28	-211.70	-0.02472	217.81	0.04152	675.6	191.3	0.02165	-0.03401
29	-216.36	-0.02635	223.09	0.04460	679.6	183.8	0.02321	-0.03639
30	-220.54	-0.02801	228.11	0.04836	683.8	177.1	0.02503	-0.03904
31	-223.39	-0.02951	231.80	0.05096	687.0	172.4	0.02637	-0.04112
32	-226.90	-0.03088	235.69	0.05435	690.3	167.2	0.02798	-0.04342
33	-230.41	-0.03220	239.06	0.05699	693.2	162.5	0.02930	-0.04540
34	-234.09	-0.03342	240.04	0.06014	693.9	159.8	0.03079	-0.04750
35	-235.92	-0.03458	243.91	0.06372	697.6	155.7	0.03244	-0.04973
36	-236.30	-0.03564	244.99	0.06886	699.1	155.1	0.03468	-0.05249
37	-238.04	-0.03653	244.94	0.07602	698.9	154.3	0.03772	-0.05598
38	-238.65	-0.03729	244.10	0.08436	698.3	154.9	0.04129	-0.05993
39	-237.90	-0.03802	240.64	0.09671	695.5	158.6	0.04663	-0.06564
40	-236.64	-0.03855	233.59	0.11122	689.5	165.8	0.05304	-0.07231



Test Name: 41\_03/07/91

Material: EPK  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
552 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 90  
  
Length: 13.119 (cm)  
Volume: 252.424 (cm<sup>3</sup>)  
Inner\_radius: 2.525 (cm)

Area: 19.221 (cm<sup>2</sup>)  
ECP: 551.200 (kPa)  
Outter\_radius: 3.535 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	654.55	0.00000	103.35	0.000	0.00000
2	-29.44	-0.00077	654.55	0.00000	102.25	0.000	0.00000
3	-62.28	-0.00183	654.55	0.00000	101.01	0.000	0.00000
4	-96.97	-0.00358	654.55	0.00000	96.26	0.000	0.00000
5	-129.93	-0.00654	654.55	0.00000	93.51	0.000	0.00000
6	-162.45	-0.01209	654.55	0.00000	96.10	0.000	0.00000
7	-196.15	-0.02081	654.55	0.00000	94.83	0.000	0.00000
8	-230.04	-0.03217	654.55	0.00000	94.07	0.000	0.00000
9	-263.99	-0.04617	654.55	0.00000	93.82	0.000	0.00000
10	-294.74	-0.06190	654.55	0.00000	94.00	0.000	0.00000
11	-327.08	-0.08008	654.55	0.00000	94.61	0.000	0.00000
12	-360.18	-0.09930	654.55	0.00000	95.52	0.000	0.00000
13	-390.65	-0.12127	654.55	0.00000	96.54	0.000	0.00000
14	-421.50	-0.14408	654.55	0.00000	97.92	0.000	0.00000
15	-452.12	-0.17044	654.55	0.00000	98.63	0.000	0.00000
16	-480.50	-0.19768	654.55	0.00000	99.46	0.000	0.00000
17	-508.55	-0.22786	654.55	0.00000	100.22	0.000	0.00000
18	-535.81	-0.25859	654.55	0.00000	100.87	0.000	0.00000
19	-562.61	-0.29306	654.55	0.00000	101.59	0.000	0.00000
20	-584.41	-0.32742	654.55	0.00000	101.61	0.000	0.00000
21	-608.34	-0.36442	654.55	0.00000	100.88	0.000	0.00000
22	-631.07	-0.40350	654.55	0.00000	100.17	0.000	0.00000
23	-650.76	-0.44197	654.55	0.00000	99.41	0.000	0.00000
24	-671.33	-0.48284	654.55	0.00000	98.35	0.000	0.00000
25	-687.73	-0.52253	654.55	0.00000	97.11	0.000	0.00000
26	-705.16	-0.56184	654.55	0.00000	95.67	0.000	0.00000
27	-721.87	-0.60271	654.55	0.00000	94.07	0.000	0.00000
28	-734.30	-0.64315	654.55	0.00000	92.42	0.000	0.00000
29	-748.14	-0.68218	654.55	0.00000	90.80	0.000	0.00000
30	-760.41	-0.72223	654.55	0.00000	89.18	0.000	0.00000
31	-772.43	-0.76050	654.55	0.00000	87.60	0.000	0.00000
32	-780.87	-0.79631	654.55	0.00000	86.13	0.000	0.00000
33	-787.72	-0.82731	654.55	0.00000	84.83	0.000	0.00000
34	-793.82	-0.85709	654.55	0.00000	83.75	0.000	0.00000
35	-797.60	-0.89519	654.55	0.00000	82.87	0.000	0.00000
36	-799.22	-0.95554	654.55	0.00000	82.18	0.000	0.00000
37	-800.14	-1.01667	654.55	0.00000	81.64	0.000	0.00000
38	-802.42	-1.06815	654.55	0.00000	81.25	0.000	0.00000
39	-803.11	-1.11015	654.55	0.00000	81.02	0.000	0.00000
40	-798.71	-1.15770	654.55	0.00000	80.94	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	551.2	551.2	0.00000	0.00000
2	-15.30	-0.00006	0.00	0.00000	552.3	537.0	0.00003	-0.00006
3	-32.36	-0.00014	0.00	0.00000	553.5	521.2	0.00007	-0.00014
4	-50.40	-0.00027	0.00	0.00000	558.3	507.9	0.00014	-0.00027
5	-67.54	-0.00050	0.00	0.00000	561.0	493.5	0.00025	-0.00050
6	-84.48	-0.00092	0.00	0.00000	558.5	474.0	0.00046	-0.00092
7	-102.08	-0.00158	0.00	0.00000	559.7	457.6	0.00079	-0.00158
8	-119.81	-0.00245	0.00	0.00000	560.5	440.7	0.00122	-0.00245
9	-137.65	-0.00351	0.00	0.00000	560.7	423.1	0.00176	-0.00351
10	-153.86	-0.00471	0.00	0.00000	560.6	406.7	0.00235	-0.00471
11	-170.98	-0.00609	0.00	0.00000	559.9	389.0	0.00304	-0.00609
12	-188.56	-0.00754	0.00	0.00000	559.0	370.5	0.00377	-0.00754
13	-204.84	-0.00920	0.00	0.00000	558.0	353.2	0.00460	-0.00920
14	-221.41	-0.01092	0.00	0.00000	556.6	335.2	0.00546	-0.01092
15	-237.96	-0.01291	0.00	0.00000	555.9	318.0	0.00645	-0.01291
16	-253.42	-0.01496	0.00	0.00000	555.1	301.7	0.00748	-0.01496
17	-268.81	-0.01722	0.00	0.00000	554.3	285.5	0.00861	-0.01722
18	-283.88	-0.01952	0.00	0.00000	553.7	269.8	0.00976	-0.01952
19	-298.85	-0.02209	0.00	0.00000	553.0	254.1	0.01105	-0.02209
20	-311.22	-0.02465	0.00	0.00000	552.9	241.7	0.01233	-0.02465
21	-324.85	-0.02740	0.00	0.00000	553.7	228.8	0.01370	-0.02740
22	-337.97	-0.03029	0.00	0.00000	554.4	216.4	0.01515	-0.03029
23	-349.51	-0.03313	0.00	0.00000	555.1	205.6	0.01657	-0.03313
24	-361.64	-0.03614	0.00	0.00000	556.2	194.6	0.01807	-0.03614
25	-371.55	-0.03906	0.00	0.00000	557.4	185.9	0.01953	-0.03906
26	-382.07	-0.04193	0.00	0.00000	558.9	176.8	0.02097	-0.04193
27	-392.29	-0.04492	0.00	0.00000	560.5	168.2	0.02246	-0.04492
28	-400.22	-0.04786	0.00	0.00000	562.1	161.9	0.02393	-0.04786
29	-408.92	-0.05069	0.00	0.00000	563.8	154.8	0.02535	-0.05069
30	-416.83	-0.05359	0.00	0.00000	565.4	148.5	0.02679	-0.05359
31	-424.60	-0.05635	0.00	0.00000	567.0	142.4	0.02818	-0.05635
32	-430.34	-0.05893	0.00	0.00000	568.4	138.1	0.02946	-0.05893
33	-435.08	-0.06115	0.00	0.00000	569.7	134.6	0.03058	-0.06115
34	-439.39	-0.06329	0.00	0.00000	570.8	131.4	0.03164	-0.06329
35	-442.69	-0.06601	0.00	0.00000	571.7	129.0	0.03300	-0.06601
36	-445.50	-0.07031	0.00	0.00000	572.4	126.9	0.03515	-0.07031
37	-447.95	-0.07464	0.00	0.00000	572.9	125.0	0.03732	-0.07464
38	-450.85	-0.07827	0.00	0.00000	573.3	122.4	0.03914	-0.07827
39	-452.58	-0.08123	0.00	0.00000	573.5	120.9	0.04062	-0.08123
40	-451.61	-0.08457	0.00	0.00000	573.6	122.0	0.04228	-0.08457

**APPENDIX IV**  
**TESTS LISTED IN TABLE 2.2**

Test Name: 62\_05/16/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 30

Length: 12.520 (cm)  
Volume: 172.423 (cm<sup>3</sup>)  
Inner\_radius: 2.520 (cm)

Area: 13.758 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.277 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	4.69	0.00013	482.30	0.00000	137.84	0.132	0.00021
3	18.75	0.00063	482.30	0.00000	137.97	0.527	0.00097
4	39.85	0.00161	482.30	0.00000	138.28	1.084	0.00224
5	62.99	0.00314	482.30	0.00000	138.87	1.663	0.00414
6	86.31	0.00516	482.30	0.00000	139.85	2.224	0.00659
7	108.90	0.00782	482.30	0.00000	141.24	2.750	0.00966
8	129.42	0.01096	482.30	0.00000	143.11	3.235	0.01331
9	148.43	0.01449	482.30	0.00000	145.35	3.681	0.01738
10	165.83	0.01846	482.30	0.00000	147.95	4.110	0.02211
11	182.38	0.02275	482.30	0.00000	150.92	4.499	0.02735
12	198.25	0.02743	482.30	0.00000	154.10	4.860	0.03308
13	213.41	0.03240	482.30	0.00000	157.54	5.199	0.03928
14	227.15	0.03766	482.30	0.00000	161.15	5.519	0.04584
15	240.03	0.04313	482.30	0.00000	164.87	5.821	0.05271
16	251.99	0.04882	482.30	0.00000	168.64	6.098	0.06024
17	263.39	0.05475	482.30	0.00000	172.46	6.357	0.06824
18	273.69	0.06086	482.30	0.00000	176.25	6.605	0.07683
19	283.42	0.06695	482.30	0.00000	179.98	6.835	0.08589
20	292.26	0.07389	482.30	0.00000	183.56	7.055	0.09568
21	300.69	0.08127	482.30	0.00000	187.07	7.268	0.10619
22	308.88	0.08881	482.30	0.00000	190.37	7.469	0.11733
23	316.92	0.09681	482.30	0.00000	193.57	7.655	0.12907
24	324.92	0.10534	482.30	0.00000	196.59	7.828	0.14096
25	332.58	0.11431	482.30	0.00000	199.39	7.988	0.15339
26	339.57	0.12367	482.30	0.00000	201.91	8.145	0.16653
27	346.17	0.13333	482.30	0.00000	204.18	8.300	0.18024
28	352.33	0.14361	482.30	0.00000	206.26	8.449	0.19410
29	358.30	0.15436	482.30	0.00000	208.14	8.599	0.20839
30	364.10	0.16579	482.30	0.00000	209.67	8.746	0.22378
31	370.36	0.17788	482.30	0.00000	211.07	8.884	0.23970
32	377.08	0.19055	482.30	0.00000	212.34	9.017	0.25625
33	383.08	0.20384	482.30	0.00000	213.37	9.143	0.27365
34	387.91	0.21744	482.30	0.00000	214.15	9.267	0.29075
35	392.66	0.23117	482.30	0.00000	214.65	9.391	0.30820
36	397.57	0.24627	482.30	0.00000	215.06	9.510	0.32706
37	402.14	0.26196	482.30	0.00000	215.27	9.613	0.34611
38	406.21	0.27839	482.30	0.00000	215.38	9.703	0.36597
39	409.72	0.29594	482.30	0.00000	215.20	9.779	0.38612
40	412.74	0.31388	482.30	0.00000	215.01	9.849	0.40677

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	3.41	0.00001	3.28	0.00005	349.9	342.5	0.00003	-0.00002
3	13.61	0.00005	13.07	0.00023	365.9	336.4	0.00013	-0.00011
4	28.92	0.00013	26.87	0.00052	389.0	328.0	0.00031	-0.00025
5	45.71	0.00025	41.20	0.00096	413.4	319.2	0.00058	-0.00045
6	62.63	0.00041	55.10	0.00153	437.1	310.4	0.00093	-0.00072
7	79.00	0.00062	68.12	0.00225	459.3	301.8	0.00137	-0.00106
8	93.86	0.00088	80.09	0.00310	478.9	293.3	0.00190	-0.00146
9	107.61	0.00116	91.09	0.00405	496.6	285.0	0.00249	-0.00191
10	120.20	0.00148	101.68	0.00515	512.6	276.3	0.00317	-0.00244
11	132.15	0.00182	111.23	0.00638	526.8	268.1	0.00392	-0.00301
12	143.59	0.00219	120.09	0.00772	539.9	260.1	0.00474	-0.00365
13	154.51	0.00259	128.41	0.00917	551.9	252.2	0.00563	-0.00433
14	164.39	0.00301	136.22	0.01071	562.4	244.2	0.00657	-0.00506
15	173.63	0.00345	143.58	0.01233	572.0	236.5	0.00755	-0.00582
16	182.20	0.00391	150.29	0.01410	580.5	229.0	0.00861	-0.00666
17	190.36	0.00438	156.58	0.01598	588.3	221.8	0.00973	-0.00754
18	197.70	0.00487	162.57	0.01800	595.2	214.6	0.01093	-0.00850
19	204.63	0.00536	168.11	0.02014	601.4	207.8	0.01218	-0.00950
20	210.90	0.00592	173.37	0.02246	607.1	201.3	0.01355	-0.01059
21	216.85	0.00651	178.45	0.02494	612.5	194.9	0.01502	-0.01177
22	222.62	0.00712	183.20	0.02759	617.6	188.9	0.01657	-0.01301
23	228.27	0.00776	187.59	0.03038	622.4	183.3	0.01821	-0.01433
24	233.87	0.00845	191.63	0.03321	627.1	178.2	0.01988	-0.01566
25	239.21	0.00917	195.34	0.03617	631.6	173.5	0.02164	-0.01706
26	244.05	0.00993	198.94	0.03932	635.8	169.0	0.02350	-0.01854
27	248.60	0.01071	202.51	0.04261	640.0	164.8	0.02544	-0.02009
28	252.82	0.01154	205.88	0.04594	644.0	160.9	0.02743	-0.02166
29	256.88	0.01241	209.27	0.04939	648.1	157.1	0.02949	-0.02329
30	260.80	0.01333	212.56	0.05311	652.4	153.7	0.03171	-0.02504
31	265.02	0.01431	215.59	0.05697	656.8	150.7	0.03402	-0.02686
32	269.55	0.01534	218.47	0.06100	661.4	148.0	0.03643	-0.02876
33	273.55	0.01642	221.16	0.06524	665.7	145.7	0.03897	-0.03076
34	276.69	0.01752	223.79	0.06944	669.6	143.4	0.04150	-0.03274
35	279.76	0.01864	226.42	0.07373	673.7	141.4	0.04408	-0.03476
36	282.91	0.01987	228.85	0.07838	677.7	139.7	0.04689	-0.03696
37	285.80	0.02115	230.89	0.08311	681.5	138.4	0.04976	-0.03919
38	288.30	0.02249	232.60	0.08805	684.7	137.4	0.05277	-0.04152
39	290.38	0.02392	233.90	0.09310	687.6	137.0	0.05587	-0.04391
40	292.09	0.02539	235.05	0.09830	690.1	136.6	0.05906	-0.04636

Test Name: 3t\_01/23/90

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.294 (cm)  
Volume: 172.056 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 13.981 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.302 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-1.10	-0.00001	482.30	0.00000	137.68	0.293	0.00035
3	-1.42	-0.00015	482.30	0.00000	137.55	0.591	0.00098
4	-1.48	-0.00042	482.30	0.00000	137.43	0.915	0.00178
5	-1.53	-0.00095	482.30	0.00000	137.35	1.242	0.00299
6	-1.22	-0.00175	482.30	0.00000	137.33	1.571	0.00431
7	-0.88	-0.00297	482.30	0.00000	137.39	1.899	0.00602
8	-0.53	-0.00455	482.30	0.00000	137.54	2.233	0.00807
9	0.26	-0.00673	482.30	0.00000	137.84	2.573	0.01066
10	0.58	-0.00924	482.30	0.00000	138.08	2.909	0.01366
11	0.81	-0.01231	482.30	0.00000	138.65	3.231	0.01718
12	1.20	-0.01551	482.30	0.00000	139.33	3.542	0.02116
13	1.96	-0.01929	482.30	0.00000	140.11	3.840	0.02556
14	2.10	-0.02326	482.30	0.00000	140.97	4.133	0.03028
15	2.66	-0.02772	482.30	0.00000	141.88	4.433	0.03576
16	3.07	-0.03252	482.30	0.00000	142.85	4.712	0.04181
17	3.67	-0.03760	482.30	0.00000	143.82	4.997	0.04813
18	4.24	-0.04340	482.30	0.00000	144.77	5.272	0.05580
19	4.41	-0.04917	482.30	0.00000	145.68	5.535	0.06391
20	4.55	-0.05562	482.30	0.00000	146.52	5.801	0.07300
21	4.44	-0.06249	482.30	0.00000	147.29	6.059	0.08278
22	4.35	-0.06946	482.30	0.00000	147.98	6.303	0.09325
23	4.50	-0.07691	482.30	0.00000	148.56	6.539	0.10501
24	4.71	-0.08426	482.30	0.00000	148.98	6.769	0.11757
25	5.32	-0.09175	482.30	0.00000	149.29	7.006	0.13031
26	5.59	-0.09987	482.30	0.00000	149.32	7.232	0.14491
27	5.78	-0.10798	482.30	0.00000	149.30	7.448	0.16019
28	5.98	-0.11566	482.30	0.00000	149.13	7.653	0.17530
29	6.24	-0.12338	482.30	0.00000	148.86	7.840	0.19152
30	6.24	-0.13105	482.30	0.00000	148.50	8.015	0.20933
31	6.24	-0.13800	482.30	0.00000	148.08	8.178	0.22832
32	6.42	-0.14405	482.30	0.00000	147.63	8.330	0.24804
33	6.43	-0.14925	482.30	0.00000	147.17	8.465	0.26919
34	6.44	-0.15377	482.30	0.00000	146.76	8.583	0.29261
35	6.45	-0.15756	482.30	0.00000	146.41	8.683	0.31914
36	6.46	-0.16009	482.30	0.00000	146.12	8.765	0.34536
37	6.46	-0.16200	482.30	0.00000	145.90	8.829	0.36903
38	6.47	-0.16346	482.30	0.00000	145.74	8.874	0.38844
39	6.47	-0.16435	482.30	0.00000	145.65	8.902	0.40047
40	6.47	-0.16460	482.30	0.00000	145.61	8.911	0.40437

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-0.79	-0.00000	7.08	0.00008	351.3	337.1	0.00004	-0.00004
3	-1.01	-0.00001	14.31	0.00023	358.6	329.9	0.00011	-0.00012
4	-1.06	-0.00003	22.13	0.00042	366.5	322.2	0.00021	-0.00022
5	-1.09	-0.00008	30.04	0.00072	374.4	314.4	0.00034	-0.00038
6	-0.87	-0.00014	38.01	0.00103	382.5	306.5	0.00049	-0.00056
7	-0.63	-0.00024	45.96	0.00144	390.6	298.6	0.00068	-0.00080
8	-0.38	-0.00037	54.05	0.00193	398.6	290.5	0.00091	-0.00110
9	0.18	-0.00055	62.29	0.00255	406.8	282.3	0.00120	-0.00147
10	0.42	-0.00075	70.43	0.00326	414.9	274.0	0.00154	-0.00191
11	0.58	-0.00100	78.26	0.00410	422.2	265.7	0.00193	-0.00243
12	0.86	-0.00126	85.83	0.00505	429.2	257.6	0.00238	-0.00301
13	1.40	-0.00157	93.11	0.00609	436.0	249.8	0.00287	-0.00366
14	1.50	-0.00189	100.26	0.00722	442.3	241.8	0.00340	-0.00435
15	1.91	-0.00225	107.59	0.00852	449.0	233.8	0.00402	-0.00514
16	2.20	-0.00264	114.43	0.00995	455.0	226.1	0.00470	-0.00602
17	2.63	-0.00305	121.43	0.01145	461.2	218.4	0.00540	-0.00693
18	3.04	-0.00352	128.19	0.01326	467.2	210.9	0.00626	-0.00802
19	3.16	-0.00399	134.69	0.01518	472.9	203.5	0.00716	-0.00916
20	3.26	-0.00451	141.27	0.01733	478.7	196.1	0.00817	-0.01043
21	3.19	-0.00507	147.67	0.01963	484.3	188.9	0.00926	-0.01179
22	3.12	-0.00563	153.75	0.02209	489.6	182.1	0.01042	-0.01324
23	3.23	-0.00624	159.66	0.02486	495.0	175.7	0.01172	-0.01484
24	3.39	-0.00683	165.42	0.02781	500.4	169.6	0.01311	-0.01652
25	3.83	-0.00744	171.35	0.03079	506.3	163.6	0.01452	-0.01823
26	4.03	-0.00809	177.06	0.03421	512.1	157.9	0.01613	-0.02017
27	4.17	-0.00875	182.52	0.03778	517.6	152.5	0.01781	-0.02218
28	4.31	-0.00936	187.72	0.04130	523.1	147.6	0.01947	-0.02415
29	4.50	-0.00999	192.49	0.04508	528.2	143.2	0.02126	-0.02625
30	4.51	-0.01060	196.99	0.04923	533.1	139.1	0.02322	-0.02852
31	4.51	-0.01116	201.16	0.05365	537.7	135.3	0.02531	-0.03089
32	4.64	-0.01165	205.04	0.05824	542.0	131.9	0.02749	-0.03332
33	4.65	-0.01207	208.50	0.06317	546.0	128.9	0.02984	-0.03587
34	4.66	-0.01243	211.51	0.06863	549.4	126.3	0.03245	-0.03867
35	4.67	-0.01274	214.07	0.07481	552.3	124.1	0.03542	-0.04179
36	4.67	-0.01294	216.16	0.08094	554.7	122.3	0.03838	-0.04485
37	4.68	-0.01309	217.79	0.08646	556.5	120.9	0.04106	-0.04761
38	4.68	-0.01321	218.95	0.09099	557.9	119.9	0.04326	-0.04987
39	4.68	-0.01328	219.65	0.09380	558.7	119.3	0.04463	-0.05127
40	4.68	-0.01330	219.88	0.09471	558.9	119.1	0.04507	-0.05172

Test Name: 61\_05/14/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 60

Length: 12.535 (cm)  
Volume: 173.684 (cm<sup>3</sup>)  
Inner\_radius: 1.257 (cm)

Area: 13.842 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outer\_radius: 1.634 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-6.49	-0.00024	482.30	0.00000	137.64	0.201	0.00013
3	-25.51	-0.00095	482.30	0.00000	137.15	0.790	0.00163
4	-57.46	-0.00349	482.30	0.00000	136.38	1.660	0.00399
5	-79.21	-0.00956	482.30	0.00000	135.35	2.218	0.00706
6	-95.99	-0.01866	482.30	0.00000	134.27	2.642	0.01110
7	-110.77	-0.03000	482.30	0.00000	133.30	3.024	0.01597
8	-123.93	-0.04316	482.30	0.00000	132.55	3.383	0.02187
9	-136.65	-0.05804	482.30	0.00000	132.16	3.720	0.02910
10	-148.37	-0.07454	482.30	0.00000	131.54	4.062	0.03727
11	-159.54	-0.09248	482.30	0.00000	131.97	4.370	0.04613
12	-170.20	-0.11178	482.30	0.00000	132.65	4.660	0.05621
13	-181.04	-0.13253	482.30	0.00000	133.42	4.932	0.06726
14	-191.87	-0.15477	482.30	0.00000	134.24	5.192	0.07938
15	-201.63	-0.17826	482.30	0.00000	134.92	5.444	0.09305
16	-210.74	-0.20259	482.30	0.00000	135.37	5.689	0.10768
17	-219.16	-0.22762	482.30	0.00000	135.51	5.922	0.12311
18	-227.49	-0.25354	482.30	0.00000	135.24	6.145	0.13982
19	-235.85	-0.28045	482.30	0.00000	134.51	6.355	0.15737
20	-244.19	-0.30837	482.30	0.00000	133.25	6.563	0.17567
21	-252.01	-0.33744	482.30	0.00000	131.50	6.776	0.19535
22	-258.72	-0.36713	482.30	0.00000	129.32	6.970	0.21619
23	-265.22	-0.39724	482.30	0.00000	126.75	7.173	0.23830
24	-271.62	-0.42763	482.30	0.00000	123.94	7.377	0.26099
25	-276.80	-0.45773	482.30	0.00000	120.87	7.579	0.28371
26	-281.80	-0.48707	482.30	0.00000	117.75	7.731	0.30856
27	-285.54	-0.51348	482.30	0.00000	114.92	7.848	0.33492
28	-288.04	-0.53605	482.30	0.00000	112.71	7.957	0.36208
29	-291.51	-0.55697	482.30	0.00000	110.67	8.073	0.39051
30	-293.37	-0.57717	482.30	0.00000	108.75	8.191	0.41995
31	-295.70	-0.59690	482.30	0.00000	106.97	8.297	0.44980
32	-297.58	-0.61575	482.30	0.00000	105.30	8.330	0.48036
33	-299.46	-0.63098	482.30	0.00000	104.10	8.358	0.51273
34	-301.01	-0.64531	482.30	0.00000	102.94	8.437	0.54566
35	-300.33	-0.65818	482.30	0.00000	102.12	8.520	0.57734
36	-297.80	-0.66940	482.30	0.00000	101.74	8.542	0.61322
37	-296.82	-0.67766	482.30	0.00000	101.92	8.540	0.65178
38	-296.43	-0.68551	482.30	0.00000	101.97	8.574	0.68956
39	-293.76	-0.69403	482.30	0.00000	102.28	8.502	0.72716
40	-292.64	-0.70064	482.30	0.00000	103.52	8.379	0.76551



	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-4.68	-0.00002	4.93	0.00003	347.8	336.9	0.00002	-0.00003
3	-18.41	-0.00008	19.41	0.00038	357.4	314.5	0.00018	-0.00022
4	-41.47	-0.00028	40.77	0.00093	370.9	279.4	0.00044	-0.00058
5	-57.19	-0.00076	54.53	0.00164	379.9	256.8	0.00081	-0.00119
6	-69.36	-0.00149	65.01	0.00258	387.0	239.7	0.00133	-0.00208
7	-80.11	-0.00239	74.51	0.00371	393.5	224.4	0.00198	-0.00318
8	-89.72	-0.00344	83.49	0.00507	399.7	210.1	0.00276	-0.00448
9	-99.05	-0.00462	91.98	0.00674	405.1	196.2	0.00368	-0.00599
10	-107.68	-0.00593	100.64	0.00861	411.1	182.8	0.00471	-0.00767
11	-115.96	-0.00735	108.49	0.01064	415.4	169.3	0.00582	-0.00950
12	-123.89	-0.00888	115.95	0.01293	419.2	156.2	0.00706	-0.01150
13	-132.00	-0.01052	123.04	0.01544	422.5	143.3	0.00841	-0.01367
14	-140.14	-0.01227	129.87	0.01817	425.6	130.4	0.00987	-0.01600
15	-147.54	-0.01412	136.54	0.02124	428.8	118.4	0.01147	-0.01853
16	-154.50	-0.01603	143.09	0.02451	432.3	107.1	0.01316	-0.02118
17	-160.99	-0.01800	149.39	0.02794	436.0	96.6	0.01493	-0.02392
18	-167.45	-0.02002	155.49	0.03164	439.9	86.7	0.01681	-0.02682
19	-173.97	-0.02213	161.31	0.03550	444.1	77.5	0.01877	-0.02983
20	-180.52	-0.02430	167.12	0.03950	448.7	68.9	0.02080	-0.03295
21	-186.72	-0.02656	173.14	0.04377	454.1	60.7	0.02295	-0.03624
22	-192.13	-0.02887	178.72	0.04827	459.8	54.0	0.02521	-0.03964
23	-197.41	-0.03120	184.57	0.05302	466.2	47.5	0.02756	-0.04316
24	-202.65	-0.03355	190.48	0.05787	472.8	41.3	0.02996	-0.04673
25	-207.00	-0.03587	196.39	0.06269	479.9	35.9	0.03234	-0.05027
26	-211.22	-0.03812	201.01	0.06795	486.0	31.9	0.03487	-0.05393
27	-214.45	-0.04015	204.66	0.07353	491.2	29.1	0.03749	-0.05756
28	-216.71	-0.04188	208.04	0.07929	495.8	26.7	0.04011	-0.06105
29	-219.67	-0.04347	211.59	0.08531	500.2	23.4	0.04282	-0.06456
30	-221.41	-0.04502	215.16	0.09153	504.8	20.9	0.04562	-0.06812
31	-223.50	-0.04652	218.45	0.09781	509.0	18.2	0.04845	-0.07171
32	-225.25	-0.04795	219.80	0.10423	511.3	17.4	0.05133	-0.07531
33	-226.94	-0.04911	220.91	0.11107	513.1	16.4	0.05436	-0.07892
34	-228.36	-0.05020	223.37	0.11801	516.0	14.3	0.05744	-0.08254
35	-228.06	-0.05118	225.90	0.12467	519.2	13.1	0.06041	-0.08600
36	-226.33	-0.05203	226.76	0.13225	520.8	14.0	0.06377	-0.08979
37	-225.73	-0.05265	226.92	0.14044	521.0	14.1	0.06740	-0.09372
38	-225.56	-0.05324	228.03	0.14845	521.9	13.1	0.07097	-0.09760
39	-223.68	-0.05389	226.34	0.15639	520.6	15.7	0.07455	-0.10149
40	-222.94	-0.05439	223.22	0.16451	516.8	17.8	0.07822	-0.10541

Test Name: 61b\_11/19/91

Material: EPK  
 Shape: Dogbone  
 a/l: 0  
 Angle:  
 Consol.: Ko NC  
 345 kPa

Control: Stress  
 Loading: Static  
 Height: Variable  
 Beta: 60  
  
 Length: 12.488 (cm)  
 Volume: 172.817 (cm<sup>3</sup>)  
 Inner\_radius: 2.526 (cm)

Area: 13.824 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outter\_radius: 3.283 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-10.28	-0.00062	482.30	0.00000	136.60	0.295	0.00082
3	-19.74	-0.00163	482.30	0.00000	135.44	0.610	0.00190
4	-30.69	-0.00321	482.30	0.00000	134.30	0.926	0.00337
5	-42.46	-0.00584	482.30	0.00000	133.32	1.264	0.00540
6	-52.87	-0.01006	482.30	0.00000	132.56	1.591	0.00855
7	-63.92	-0.01609	482.30	0.00000	131.99	1.930	0.01262
8	-74.57	-0.02395	482.30	0.00000	131.70	2.244	0.01740
9	-84.84	-0.03292	482.30	0.00000	131.68	2.527	0.02266
10	-94.43	-0.04281	482.30	0.00000	131.87	2.823	0.02829
11	-104.96	-0.05340	482.30	0.00000	132.14	3.117	0.03417
12	-116.56	-0.06708	482.30	0.00000	132.30	3.386	0.04155
13	-126.51	-0.08119	482.30	0.00000	132.65	3.662	0.04935
14	-136.26	-0.09610	482.30	0.00000	133.05	3.932	0.05764
15	-145.86	-0.11317	482.30	0.00000	133.31	4.196	0.06704
16	-155.78	-0.13199	482.30	0.00000	133.33	4.466	0.07781
17	-164.97	-0.15294	482.30	0.00000	133.24	4.728	0.08985
18	-174.25	-0.17363	482.30	0.00000	132.94	4.944	0.10189
19	-183.68	-0.19964	482.30	0.00000	132.29	5.247	0.11752
20	-191.53	-0.22589	482.30	0.00000	131.31	5.496	0.13392
21	-198.85	-0.25220	482.30	0.00000	130.04	5.719	0.15062
22	-206.39	-0.27889	482.30	0.00000	128.43	5.953	0.16844
23	-213.37	-0.30835	482.30	0.00000	126.52	6.197	0.18924
24	-218.74	-0.33539	482.30	0.00000	124.42	6.472	0.20972
25	-224.75	-0.36454	482.30	0.00000	122.12	6.691	0.23203
26	-230.91	-0.39461	482.30	0.00000	119.41	6.931	0.25524
27	-236.72	-0.42585	482.30	0.00000	116.50	7.147	0.28023
28	-241.30	-0.45519	482.30	0.00000	113.67	7.346	0.30462
29	-246.94	-0.48469	482.30	0.00000	110.87	7.524	0.32934
30	-252.56	-0.51061	482.30	0.00000	108.40	7.650	0.35857
31	-257.43	-0.53736	482.30	0.00000	106.47	7.775	0.40237
32	-261.04	-0.56132	482.30	0.00000	104.88	7.934	0.44440
33	-266.18	-0.58625	482.30	0.00000	103.36	7.975	0.50641
34	-270.48	-0.60856	482.30	0.00000	102.05	8.072	0.57026
35	-272.57	-0.62604	482.30	0.00000	101.06	8.073	0.62659
36	-273.96	-0.64059	482.30	0.00000	100.29	8.113	0.68162
37	-275.73	-0.65322	482.30	0.00000	99.71	8.157	0.72799
38	-277.19	-0.66199	482.30	0.00000	99.29	8.119	0.76566
39	-277.97	-0.67104	482.30	0.00000	99.03	7.972	0.80882
40	-278.23	-0.67685	482.30	0.00000	98.95	7.578	0.85658

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-7.43	-0.00005	7.25	0.00019	350.1	333.8	0.00009	-0.00012
3	-14.26	-0.00013	15.01	0.00044	356.4	323.1	0.00021	-0.00028
4	-22.18	-0.00026	22.78	0.00079	362.3	311.6	0.00037	-0.00050
5	-30.69	-0.00047	31.13	0.00126	368.3	298.9	0.00061	-0.00084
6	-38.22	-0.00081	39.18	0.00200	374.2	287.0	0.00097	-0.00137
7	-46.24	-0.00129	47.57	0.00295	380.1	274.3	0.00144	-0.00208
8	-53.97	-0.00192	55.36	0.00406	385.2	262.0	0.00201	-0.00297
9	-61.45	-0.00263	62.42	0.00528	389.5	250.3	0.00264	-0.00395
10	-68.45	-0.00342	69.80	0.00658	393.9	238.5	0.00332	-0.00503
11	-76.15	-0.00427	77.16	0.00794	398.1	226.0	0.00403	-0.00617
12	-84.65	-0.00536	83.97	0.00964	401.7	213.6	0.00494	-0.00761
13	-91.98	-0.00648	90.97	0.01143	405.6	201.7	0.00588	-0.00912
14	-99.19	-0.00767	97.84	0.01333	409.3	190.0	0.00689	-0.01072
15	-106.32	-0.00902	104.63	0.01547	413.2	178.5	0.00802	-0.01253
16	-113.72	-0.01051	111.62	0.01791	417.4	166.8	0.00931	-0.01456
17	-120.63	-0.01217	118.46	0.02064	421.7	155.8	0.01073	-0.01682
18	-127.63	-0.01381	124.17	0.02334	425.1	145.9	0.01215	-0.01906
19	-134.81	-0.01586	132.19	0.02684	431.0	134.2	0.01397	-0.02190
20	-140.86	-0.01793	138.88	0.03049	436.3	124.8	0.01585	-0.02481
21	-146.55	-0.01999	144.98	0.03419	441.4	116.5	0.01774	-0.02774
22	-152.42	-0.02209	151.37	0.03812	447.1	108.2	0.01973	-0.03077
23	-157.95	-0.02439	158.12	0.04267	453.5	100.1	0.02201	-0.03420
24	-162.26	-0.02650	165.67	0.04714	461.2	92.3	0.02421	-0.03746
25	-167.10	-0.02877	171.86	0.05198	467.7	85.5	0.02659	-0.04097
26	-172.08	-0.03111	178.64	0.05698	475.1	78.6	0.02905	-0.04460
27	-176.83	-0.03353	184.90	0.06233	482.3	72.4	0.03166	-0.04843
28	-180.67	-0.03580	190.68	0.06753	489.3	67.3	0.03419	-0.05209
29	-185.31	-0.03808	195.96	0.07276	495.5	62.0	0.03673	-0.05577
30	-189.91	-0.04007	199.84	0.07898	500.2	57.7	0.03961	-0.05965
31	-193.97	-0.04213	203.76	0.08835	504.5	53.2	0.04378	-0.06485
32	-197.05	-0.04397	208.48	0.09731	509.5	48.3	0.04779	-0.06977
33	-201.31	-0.04588	210.15	0.11058	511.3	45.3	0.05365	-0.07659
34	-204.92	-0.04758	213.26	0.12420	514.4	41.2	0.05973	-0.08352
35	-206.78	-0.04892	213.72	0.13620	515.3	40.4	0.06512	-0.08958
36	-208.06	-0.05002	215.13	0.14791	516.9	39.0	0.07042	-0.09543
37	-209.60	-0.05099	216.62	0.15774	518.4	37.2	0.07491	-0.10040
38	-210.86	-0.05165	215.83	0.16574	517.8	37.4	0.07857	-0.10439
39	-211.59	-0.05234	212.14	0.17490	514.5	40.4	0.08277	-0.10894
40	-211.88	-0.05278	201.79	0.18511	505.3	49.5	0.08747	-0.11386

**APPENDIX V**  
**TESTS LISTED IN TABLE 2.3**

Test Name: 50\_04/03/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko NC  
345 kPa

Length: 12.344 (cm)  
Volume: 170.567 (cm<sup>3</sup>)  
Inner\_radius: 2.523 (cm)

Area: 13.803 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.280 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	28.78	0.00107	482.30	0.00000	139.64	0.000	0.00000
3	59.58	0.00249	482.30	0.00000	141.80	0.000	0.00000
4	92.25	0.00427	482.30	0.00000	144.51	0.000	0.00000
5	125.16	0.00646	482.30	0.00000	147.62	0.000	0.00000
6	159.49	0.00915	482.30	0.00000	151.00	0.000	0.00000
7	194.40	0.01238	482.30	0.00000	154.64	0.000	0.00000
8	227.80	0.01615	482.30	0.00000	158.52	0.000	0.00000
9	260.85	0.02039	482.30	0.00000	162.58	0.000	0.00000
10	293.29	0.02505	482.30	0.00000	166.69	0.000	0.00000
11	326.25	0.03020	482.30	0.00000	170.73	0.000	0.00000
12	358.04	0.03593	482.30	0.00000	174.73	0.000	0.00000
13	390.12	0.04208	482.30	0.00000	178.77	0.000	0.00000
14	419.38	0.04836	482.30	0.00000	182.61	0.000	0.00000
15	448.39	0.05483	482.30	0.00000	186.10	0.000	0.00000
16	477.61	0.06182	482.30	0.00000	189.27	0.000	0.00000
17	505.85	0.06904	482.30	0.00000	192.20	0.000	0.00000
18	532.77	0.07642	482.30	0.00000	194.94	0.000	0.00000
19	559.58	0.08444	482.30	0.00000	197.46	0.000	0.00000
20	585.53	0.09245	482.30	0.00000	199.76	0.000	0.00000
21	609.00	0.10038	482.30	0.00000	201.93	0.000	0.00000
22	632.08	0.10877	482.30	0.00000	204.06	0.000	0.00000
23	655.07	0.11751	482.30	0.00000	206.14	0.000	0.00000
24	676.06	0.12753	482.30	0.00000	207.92	0.000	0.00000
25	694.48	0.13651	482.30	0.00000	209.50	0.000	0.00000
26	713.63	0.14741	482.30	0.00000	210.96	0.000	0.00000
27	733.08	0.16057	482.30	0.00000	212.87	0.000	0.00000
28	753.99	0.17940	482.30	0.00000	215.11	0.000	0.00000
29	771.37	0.20142	482.30	0.00000	215.98	0.000	0.00000
30	786.82	0.22477	482.30	0.00000	217.05	0.000	0.00000
31	802.34	0.25254	482.30	0.00000	218.40	0.000	0.00000
32	816.21	0.28512	482.30	0.00000	219.90	0.000	0.00000
33	828.58	0.31988	482.30	0.00000	221.32	0.000	0.00000
34	840.28	0.35846	482.30	0.00000	222.64	0.000	0.00000
35	849.95	0.39609	482.30	0.00000	223.85	0.000	0.00000
36	856.75	0.43367	482.30	0.00000	224.99	0.000	0.00000
37	862.12	0.46866	482.30	0.00000	225.88	0.000	0.00000
38	865.96	0.51537	482.30	0.00000	226.53	0.000	0.00000
39	868.27	0.55856	482.30	0.00000	226.91	0.000	0.00000
40	869.04	0.59235	482.30	0.00000	227.04	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	20.82	0.00009	0.00	0.00000	363.5	342.7	0.00009	-0.00004
3	43.10	0.00020	0.00	0.00000	383.6	340.5	0.00020	-0.00010
4	66.72	0.00035	0.00	0.00000	404.5	337.8	0.00035	-0.00017
5	90.51	0.00052	0.00	0.00000	425.2	334.7	0.00052	-0.00026
6	115.31	0.00074	0.00	0.00000	446.6	331.3	0.00074	-0.00037
7	140.51	0.00100	0.00	0.00000	468.2	327.7	0.00100	-0.00050
8	164.60	0.00131	0.00	0.00000	488.4	323.8	0.00131	-0.00065
9	188.42	0.00165	0.00	0.00000	508.1	319.7	0.00165	-0.00083
10	211.77	0.00203	0.00	0.00000	527.4	315.6	0.00203	-0.00102
11	235.47	0.00245	0.00	0.00000	547.0	311.6	0.00245	-0.00122
12	258.29	0.00292	0.00	0.00000	565.9	307.6	0.00292	-0.00146
13	281.29	0.00341	0.00	0.00000	584.8	303.5	0.00341	-0.00171
14	302.24	0.00393	0.00	0.00000	601.9	299.7	0.00393	-0.00196
15	322.98	0.00445	0.00	0.00000	619.2	296.2	0.00445	-0.00223
16	343.82	0.00502	0.00	0.00000	636.9	293.0	0.00502	-0.00251
17	363.94	0.00561	0.00	0.00000	654.0	290.1	0.00561	-0.00280
18	383.08	0.00621	0.00	0.00000	670.4	287.4	0.00621	-0.00310
19	402.09	0.00686	0.00	0.00000	686.9	284.8	0.00686	-0.00343
20	420.46	0.00752	0.00	0.00000	703.0	282.5	0.00752	-0.00376
21	437.04	0.00816	0.00	0.00000	717.4	280.4	0.00816	-0.00408
22	453.29	0.00885	0.00	0.00000	731.5	278.2	0.00885	-0.00443
23	469.44	0.00956	0.00	0.00000	745.6	276.2	0.00956	-0.00478
24	484.09	0.01038	0.00	0.00000	758.5	274.4	0.01038	-0.00519
25	496.90	0.01112	0.00	0.00000	769.7	272.8	0.01112	-0.00556
26	510.16	0.01201	0.00	0.00000	781.5	271.3	0.01201	-0.00601
27	523.49	0.01309	0.00	0.00000	792.9	269.4	0.01309	-0.00655
28	537.59	0.01464	0.00	0.00000	804.8	267.2	0.01464	-0.00732
29	548.99	0.01645	0.00	0.00000	815.3	266.3	0.01645	-0.00823
30	558.91	0.01838	0.00	0.00000	824.2	265.2	0.01838	-0.00919
31	568.62	0.02067	0.00	0.00000	832.5	263.9	0.02067	-0.01033
32	576.90	0.02337	0.00	0.00000	839.3	262.4	0.02337	-0.01168
33	583.95	0.02625	0.00	0.00000	844.9	261.0	0.02625	-0.01313
34	590.30	0.02947	0.00	0.00000	850.0	259.7	0.02947	-0.01473
35	595.22	0.03261	0.00	0.00000	853.7	258.5	0.03261	-0.01631
36	598.09	0.03576	0.00	0.00000	855.4	257.3	0.03576	-0.01788
37	600.07	0.03871	0.00	0.00000	856.5	256.4	0.03871	-0.01935
38	600.38	0.04265	0.00	0.00000	856.1	255.8	0.04265	-0.02132
39	599.78	0.04630	0.00	0.00000	855.2	255.4	0.04630	-0.02315
40	598.59	0.04917	0.00	0.00000	853.8	255.3	0.04917	-0.02459

Test Name: 51\_04/05/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko NC  
345 kPa

Length: 12.465 (cm)  
Volume: 172.717 (cm<sup>3</sup>)  
Inner\_radius: 2.527 (cm)

Area: 13.842 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.277 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	11.63	0.00031	482.30	0.00000	137.59	0.309	0.00075
3	25.51	0.00087	482.30	0.00000	137.90	0.726	0.00163
4	39.44	0.00145	482.30	0.00000	138.39	1.064	0.00252
5	52.17	0.00214	482.30	0.00000	139.14	1.467	0.00363
6	66.30	0.00301	482.30	0.00000	140.12	1.926	0.00517
7	81.01	0.00408	482.30	0.00000	141.32	2.329	0.00699
8	96.16	0.00518	482.30	0.00000	142.68	2.641	0.00917
9	110.04	0.00645	482.30	0.00000	144.34	3.106	0.01189
10	123.51	0.00777	482.30	0.00000	145.98	3.533	0.01474
11	136.72	0.00915	482.30	0.00000	147.73	3.894	0.01778
12	150.49	0.01079	482.30	0.00000	149.63	4.318	0.02133
13	163.96	0.01236	482.30	0.00000	151.55	4.695	0.02515
14	175.45	0.01411	482.30	0.00000	153.62	5.051	0.02923
15	188.02	0.01595	482.30	0.00000	155.59	5.404	0.03396
16	202.99	0.01819	482.30	0.00000	157.48	5.803	0.03957
17	215.60	0.02029	482.30	0.00000	159.45	6.143	0.04518
18	227.72	0.02266	482.30	0.00000	161.38	6.479	0.05140
19	239.00	0.02514	482.30	0.00000	163.33	6.814	0.05821
20	249.63	0.02768	482.30	0.00000	165.20	7.124	0.06552
21	259.53	0.03039	482.30	0.00000	166.99	7.394	0.07344
22	268.88	0.03334	482.30	0.00000	168.68	7.720	0.08215
23	277.72	0.03667	482.30	0.00000	170.30	7.995	0.09194
24	287.25	0.04033	482.30	0.00000	171.86	8.281	0.10273
25	295.10	0.04453	482.30	0.00000	173.31	8.532	0.11482
26	303.21	0.04924	482.30	0.00000	174.60	8.812	0.12794
27	310.56	0.05496	482.30	0.00000	175.86	9.024	0.14244
28	317.24	0.06108	482.30	0.00000	176.91	9.242	0.15683
29	323.94	0.06845	482.30	0.00000	177.77	9.485	0.17327
30	326.99	0.07615	482.30	0.00000	178.46	9.685	0.19043
31	332.23	0.08469	482.30	0.00000	179.06	9.897	0.20846
32	336.03	0.09472	482.30	0.00000	179.51	10.086	0.22768
33	339.48	0.10595	482.30	0.00000	179.87	10.248	0.24788
34	339.99	0.11848	482.30	0.00000	180.05	10.383	0.26907
35	341.11	0.13599	482.30	0.00000	180.14	10.498	0.29765
36	341.00	0.16568	482.30	0.00000	180.10	10.635	0.34007
37	337.55	0.20989	482.30	0.00000	179.99	10.744	0.39790
38	334.28	0.26018	482.30	0.00000	179.98	10.806	0.45906
39	327.50	0.31354	482.30	0.00000	179.84	10.792	0.51984
40	324.39	0.33490	482.30	0.00000	179.76	10.783	0.54454

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	8.39	0.00002	7.56	0.00018	357.6	340.3	0.00010	-0.00008
3	18.41	0.00007	17.73	0.00038	373.6	333.6	0.00022	-0.00018
4	28.45	0.00012	25.99	0.00059	387.8	328.5	0.00034	-0.00028
5	37.63	0.00017	35.83	0.00085	402.4	321.5	0.00049	-0.00040
6	47.82	0.00024	47.04	0.00122	418.9	313.3	0.00070	-0.00058
7	58.43	0.00033	56.89	0.00165	434.1	306.2	0.00094	-0.00078
8	69.35	0.00042	64.49	0.00216	447.5	301.1	0.00123	-0.00102
9	79.35	0.00052	75.82	0.00280	463.2	292.1	0.00158	-0.00133
10	89.06	0.00062	86.24	0.00348	477.9	283.8	0.00196	-0.00164
11	98.57	0.00073	95.04	0.00419	490.9	276.8	0.00235	-0.00198
12	108.48	0.00087	105.37	0.00503	505.4	268.4	0.00282	-0.00238
13	118.18	0.00099	114.56	0.00594	518.7	260.9	0.00331	-0.00281
14	126.44	0.00113	123.22	0.00690	530.4	253.4	0.00384	-0.00327
15	135.48	0.00128	131.78	0.00802	542.6	246.3	0.00444	-0.00380
16	146.24	0.00146	141.47	0.00935	557.2	238.7	0.00516	-0.00443
17	155.30	0.00163	149.74	0.01067	569.2	231.8	0.00588	-0.00507
18	164.00	0.00182	157.87	0.01215	580.8	225.0	0.00668	-0.00577
19	172.09	0.00202	166.00	0.01376	592.0	218.0	0.00755	-0.00654
20	179.71	0.00222	173.48	0.01549	602.3	211.6	0.00848	-0.00737
21	186.79	0.00244	180.00	0.01737	611.5	205.9	0.00949	-0.00827
22	193.48	0.00268	187.88	0.01944	621.7	199.0	0.01059	-0.00926
23	199.78	0.00295	194.49	0.02176	630.5	193.3	0.01184	-0.01037
24	206.58	0.00324	201.36	0.02433	640.0	187.4	0.01321	-0.01159
25	212.15	0.00358	207.36	0.02720	648.0	182.2	0.01476	-0.01297
26	217.90	0.00396	214.03	0.03033	656.8	176.5	0.01644	-0.01446
27	223.08	0.00442	219.03	0.03379	663.8	172.2	0.01832	-0.01611
28	227.76	0.00491	224.16	0.03723	670.7	167.8	0.02021	-0.01775
29	232.44	0.00551	229.84	0.04117	678.3	163.2	0.02237	-0.01962
30	234.48	0.00613	234.48	0.04529	683.2	158.9	0.02464	-0.02158
31	238.07	0.00682	239.37	0.04963	689.6	154.9	0.02704	-0.02363
32	240.60	0.00763	243.63	0.05427	694.8	151.4	0.02964	-0.02583
33	242.85	0.00854	247.22	0.05917	699.3	148.4	0.03240	-0.02813
34	242.97	0.00955	250.08	0.06432	701.8	145.7	0.03534	-0.03056
35	243.42	0.01097	252.31	0.07131	704.0	143.7	0.03933	-0.03385
36	242.75	0.01338	254.70	0.08177	705.7	141.4	0.04544	-0.03875
37	239.44	0.01698	255.91	0.09619	704.6	139.5	0.05400	-0.04551
38	236.15	0.02109	255.81	0.11166	702.1	138.6	0.06330	-0.05275
39	230.35	0.02548	253.80	0.12728	696.3	138.9	0.07281	-0.06008
40	227.75	0.02723	252.94	0.13368	693.8	139.0	0.07670	-0.06308



Test Name: 6v\_09/26/90

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko NC  
345 kPa

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.744 (cm)  
Volume: 178.365 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 13.981 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.302 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	0.23	0.00001	482.30	0.00000	137.81	0.132	0.00026
3	0.10	0.00000	482.30	0.00000	137.82	0.592	0.00113
4	-0.53	-0.00008	482.30	0.00000	137.83	1.194	0.00246
5	-0.97	-0.00039	482.30	0.00000	137.82	1.820	0.00437
6	-0.42	-0.00101	482.30	0.00000	137.89	2.390	0.00692
7	0.60	-0.00207	482.30	0.00000	138.01	2.882	0.01003
8	1.50	-0.00350	482.30	0.00000	138.23	3.326	0.01366
9	2.45	-0.00530	482.30	0.00000	138.55	3.743	0.01791
10	3.72	-0.00750	482.30	0.00000	138.92	4.128	0.02275
11	4.63	-0.01001	482.30	0.00000	139.51	4.495	0.02740
12	5.22	-0.01287	482.30	0.00000	140.20	4.828	0.03260
13	5.46	-0.01599	482.30	0.00000	141.05	5.161	0.03848
14	5.67	-0.01943	482.30	0.00000	141.89	5.454	0.04564
15	5.79	-0.02316	482.30	0.00000	142.78	5.765	0.05341
16	5.96	-0.02717	482.30	0.00000	143.71	6.027	0.06125
17	6.04	-0.03143	482.30	0.00000	144.64	6.285	0.06964
18	6.06	-0.03585	482.30	0.00000	145.50	6.537	0.07922
19	6.06	-0.04061	482.30	0.00000	146.44	6.786	0.08891
20	6.11	-0.04546	482.30	0.00000	146.92	7.000	0.09892
21	6.27	-0.05034	482.30	0.00000	147.51	7.237	0.11003
22	6.51	-0.05533	482.30	0.00000	147.80	7.452	0.12130
23	6.95	-0.06030	482.30	0.00000	147.99	7.653	0.13166
24	7.62	-0.06516	482.30	0.00000	148.28	7.837	0.14340
25	8.54	-0.06983	482.30	0.00000	148.27	8.045	0.15651
26	9.49	-0.07429	482.30	0.00000	148.22	8.213	0.16976
27	10.19	-0.07884	482.30	0.00000	148.05	8.407	0.18372
28	10.67	-0.08324	482.30	0.00000	147.69	8.568	0.19799
29	10.96	-0.08746	482.30	0.00000	147.18	8.712	0.21323
30	11.20	-0.09136	482.30	0.00000	146.58	8.851	0.22846
31	11.29	-0.09438	482.30	0.00000	146.26	8.963	0.24452
32	11.33	-0.09662	482.30	0.00000	145.52	9.089	0.26118
33	11.35	-0.09831	482.30	0.00000	144.72	9.208	0.27827
34	11.63	-0.09920	482.30	0.00000	143.82	9.304	0.29533
35	11.97	-0.09956	482.30	0.00000	142.86	9.401	0.31389
36	11.81	-0.09943	482.30	0.00000	141.94	9.475	0.33326
37	10.48	-0.09871	482.30	0.00000	140.92	9.543	0.35234
38	9.70	-0.09751	482.30	0.00000	139.92	9.545	0.37231
39	8.78	-0.09546	482.30	0.00000	139.12	9.470	0.39227
40	7.68	-0.09265	482.30	0.00000	138.54	9.348	0.41339

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	0.17	0.00000	3.18	0.00006	347.8	341.4	0.00003	-0.00003
3	0.07	0.00000	14.31	0.00026	358.8	330.2	0.00013	-0.00013
4	-0.38	-0.00001	28.89	0.00057	373.2	315.4	0.00028	-0.00028
5	-0.69	-0.00003	44.03	0.00101	388.2	300.1	0.00050	-0.00051
6	-0.30	-0.00008	57.81	0.00159	402.1	286.5	0.00078	-0.00082
7	0.43	-0.00016	69.73	0.00231	414.2	274.8	0.00112	-0.00120
8	1.07	-0.00027	80.48	0.00315	425.1	264.1	0.00152	-0.00166
9	1.75	-0.00042	90.59	0.00413	435.2	254.0	0.00198	-0.00219
10	2.66	-0.00059	99.94	0.00524	444.7	244.8	0.00251	-0.00280
11	3.31	-0.00079	108.86	0.00631	453.3	235.6	0.00301	-0.00340
12	3.74	-0.00101	116.95	0.00750	460.9	227.0	0.00357	-0.00408
13	3.90	-0.00125	125.06	0.00885	468.3	218.1	0.00421	-0.00484
14	4.06	-0.00152	132.22	0.01050	474.7	210.2	0.00499	-0.00575
15	4.14	-0.00182	139.84	0.01228	481.4	201.7	0.00583	-0.00674
16	4.27	-0.00213	146.24	0.01407	487.0	194.5	0.00668	-0.00775
17	4.33	-0.00246	152.58	0.01599	492.4	187.2	0.00759	-0.00882
18	4.34	-0.00281	158.79	0.01818	497.8	180.2	0.00863	-0.01003
19	4.34	-0.00318	164.92	0.02040	503.0	173.1	0.00968	-0.01127
20	4.38	-0.00356	170.23	0.02268	507.8	167.3	0.01076	-0.01254
21	4.50	-0.00394	176.09	0.02521	513.1	160.9	0.01196	-0.01393
22	4.67	-0.00433	181.42	0.02778	518.3	155.4	0.01318	-0.01535
23	4.99	-0.00472	186.42	0.03013	523.2	150.4	0.01430	-0.01666
24	5.47	-0.00510	191.02	0.03280	527.8	145.7	0.01557	-0.01812
25	6.13	-0.00546	196.20	0.03578	533.3	140.9	0.01699	-0.01972
26	6.82	-0.00581	200.40	0.03879	537.9	137.1	0.01842	-0.02133
27	7.33	-0.00617	205.24	0.04195	543.2	132.6	0.01994	-0.02302
28	7.67	-0.00651	209.28	0.04519	547.8	129.1	0.02149	-0.02474
29	7.88	-0.00684	212.90	0.04865	552.0	126.1	0.02315	-0.02657
30	8.06	-0.00714	216.38	0.05210	556.2	123.3	0.02481	-0.02838
31	8.12	-0.00738	219.20	0.05574	559.3	120.9	0.02657	-0.03026
32	8.15	-0.00755	222.35	0.05952	563.2	118.5	0.02841	-0.03218
33	8.17	-0.00768	225.30	0.06340	567.0	116.3	0.03030	-0.03414
34	8.37	-0.00775	227.67	0.06728	570.4	115.0	0.03220	-0.03608
35	8.62	-0.00778	230.06	0.07151	573.8	113.6	0.03428	-0.03817
36	8.50	-0.00777	231.88	0.07592	576.5	112.7	0.03646	-0.04035
37	7.54	-0.00772	233.53	0.08028	578.7	111.6	0.03862	-0.04248
38	6.98	-0.00762	233.53	0.08484	579.4	112.3	0.04090	-0.04471
39	6.32	-0.00746	231.64	0.08941	578.0	114.7	0.04319	-0.04692
40	5.53	-0.00724	228.59	0.09425	575.1	117.9	0.04563	-0.04925

Test Name: 52\_04/09/91

Material: EPK  
 Shape: Dogbone  
 a/l: 0.183  
 Angle: 0.0  
 Consol.: Ko NC  
 345 kPa

Control: Stress  
 Loading: Static  
 Height: Variable  
 Beta: 60

Length: 12.405 (cm)  
 Volume: 171.729 (cm<sup>3</sup>)  
 Inner\_radius: 2.527 (cm)

Area: 13.829 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outter\_radius: 3.284 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-10.50	-0.00097	482.30	-0.14079	136.83	0.294	0.00090
3	-20.97	-0.00222	482.30	-0.28136	135.86	0.593	0.00188
4	-31.65	-0.00450	482.30	-0.42146	134.90	0.898	0.00320
5	-42.48	-0.00831	482.30	-0.54131	134.07	1.211	0.00522
6	-53.61	-0.01406	482.30	-0.64034	133.39	1.545	0.00819
7	-64.12	-0.02180	482.30	-0.70627	132.94	1.868	0.01205
8	-74.71	-0.03150	482.30	-0.73464	132.74	2.186	0.01675
9	-85.70	-0.04317	482.30	-0.72681	132.80	2.495	0.02224
10	-96.14	-0.05640	482.30	-0.72199	132.83	2.772	0.02806
11	-106.52	-0.07113	482.30	-0.64464	133.36	3.171	0.03495
12	-116.68	-0.08739	482.30	-0.56394	133.92	3.421	0.04285
13	-126.54	-0.10505	482.30	-0.48154	134.48	3.799	0.05181
14	-136.50	-0.12402	482.30	-0.40858	134.99	4.077	0.06223
15	-145.94	-0.14354	482.30	-0.36011	135.32	4.229	0.07242
16	-155.42	-0.16519	482.30	-0.35246	135.37	4.555	0.08347
17	-164.71	-0.19102	482.30	-0.40370	135.02	4.899	0.09806
18	-173.52	-0.21904	482.30	-0.50908	134.30	5.184	0.11516
19	-181.64	-0.24835	482.30	-0.66058	133.25	5.446	0.13351
20	-189.28	-0.27790	482.30	-0.85690	131.90	5.689	0.15232
21	-196.11	-0.30770	482.30	-1.10018	130.23	5.922	0.17171
22	-202.77	-0.33831	482.30	-1.38833	128.24	6.169	0.19306
23	-209.36	-0.36936	482.30	-1.71410	126.00	6.400	0.21629
24	-215.62	-0.40083	482.30	-2.07865	123.49	6.606	0.24039
25	-221.74	-0.43178	482.30	-2.47448	120.76	6.832	0.26543
26	-227.61	-0.46215	482.30	-2.88652	117.93	7.026	0.29131
27	-233.06	-0.49096	482.30	-3.28856	115.16	7.190	0.31646
28	-237.81	-0.51772	482.30	-3.66746	112.55	7.347	0.34233
29	-242.30	-0.54322	482.30	-4.01702	110.14	7.493	0.37162
30	-247.02	-0.56806	482.30	-4.33616	107.95	7.627	0.40679
31	-251.94	-0.59223	482.30	-4.63156	105.91	7.741	0.44677
32	-256.30	-0.61445	482.30	-4.89805	104.08	7.815	0.48798
33	-260.36	-0.63432	482.30	-5.13037	102.48	7.884	0.52850
34	-264.07	-0.65239	482.30	-5.32965	101.11	7.938	0.56955
35	-267.51	-0.66908	482.30	-5.49503	99.97	7.960	0.61255
36	-270.44	-0.68316	482.30	-5.62928	99.04	7.977	0.65035
37	-272.72	-0.69413	482.30	-5.73392	98.32	7.990	0.67982
38	-274.35	-0.70198	482.30	-5.80879	97.81	8.000	0.70090
39	-275.33	-0.70670	482.30	-5.85376	97.50	8.005	0.71356
40	-275.65	-0.70824	482.30	-5.86829	97.40	8.007	0.71753

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-7.58	-0.00008	7.21	0.00021	349.8	333.5	-0.00004	-0.00040
3	-15.12	-0.00018	14.53	0.00044	355.3	322.5	-0.00010	-0.00081
4	-22.81	-0.00036	21.98	0.00076	360.8	311.2	-0.00020	-0.00121
5	-30.60	-0.00067	29.65	0.00123	366.3	299.6	-0.00028	-0.00163
6	-38.61	-0.00113	37.81	0.00193	372.1	287.1	-0.00024	-0.00218
7	-46.19	-0.00176	45.74	0.00284	377.5	275.0	-0.00002	-0.00291
8	-53.86	-0.00254	53.57	0.00394	382.6	262.7	0.00044	-0.00384
9	-61.84	-0.00347	61.24	0.00523	387.2	250.0	0.00111	-0.00496
10	-69.45	-0.00454	68.14	0.00658	391.2	238.3	0.00186	-0.00623
11	-77.07	-0.00572	78.16	0.00818	397.5	223.3	0.00292	-0.00765
12	-84.58	-0.00702	84.53	0.01001	400.6	211.6	0.00412	-0.00927
13	-91.90	-0.00843	94.13	0.01207	406.6	197.1	0.00544	-0.01106
14	-99.32	-0.00995	101.31	0.01447	410.5	184.8	0.00689	-0.01305
15	-106.39	-0.01150	105.38	0.01679	411.8	175.7	0.00827	-0.01507
16	-113.50	-0.01323	113.82	0.01930	417.4	163.0	0.00966	-0.01730
17	-120.50	-0.01528	122.74	0.02261	423.8	150.3	0.01128	-0.02009
18	-127.14	-0.01750	130.19	0.02648	429.3	139.5	0.01301	-0.02325
19	-133.29	-0.01982	137.06	0.03060	434.8	130.0	0.01476	-0.02659
20	-139.06	-0.02215	143.44	0.03481	440.3	121.5	0.01644	-0.03000
21	-144.21	-0.02450	149.53	0.03913	446.0	114.0	0.01805	-0.03350
22	-149.22	-0.02691	155.93	0.04388	452.3	106.6	0.01974	-0.03722
23	-154.16	-0.02934	161.89	0.04902	458.5	99.9	0.02152	-0.04115
24	-158.82	-0.03180	167.20	0.05434	464.5	94.3	0.02329	-0.04520
25	-163.35	-0.03421	172.95	0.05985	471.1	88.6	0.02506	-0.04932
26	-167.68	-0.03658	177.88	0.06553	477.2	83.9	0.02687	-0.05350
27	-171.68	-0.03881	182.02	0.07103	482.5	80.1	0.02863	-0.05752
28	-175.16	-0.04089	185.95	0.07668	487.7	76.6	0.03048	-0.06149
29	-178.47	-0.04286	189.65	0.08308	492.5	73.3	0.03271	-0.06570
30	-181.97	-0.04477	193.06	0.09077	496.8	69.9	0.03556	-0.07041
31	-185.62	-0.04664	195.99	0.09949	500.4	66.7	0.03893	-0.07556
32	-188.87	-0.04834	197.95	0.10847	503.1	64.5	0.04249	-0.08073
33	-191.90	-0.04987	199.75	0.11729	505.5	62.3	0.04606	-0.08572
34	-194.69	-0.05125	201.19	0.12621	507.4	60.3	0.04976	-0.09067
35	-197.29	-0.05253	201.87	0.13554	508.4	59.0	0.05374	-0.09575
36	-199.51	-0.05361	202.39	0.14373	509.1	57.9	0.05726	-0.10019
37	-201.25	-0.05444	202.80	0.15009	509.7	57.0	0.06001	-0.10365
38	-202.49	-0.05504	203.09	0.15464	510.2	56.3	0.06198	-0.10613
39	-203.23	-0.05540	203.27	0.15737	510.4	55.9	0.06316	-0.10762
40	-203.48	-0.05552	203.33	0.15822	510.5	55.8	0.06353	-0.10809

Test Name: 53\_04/11/91

Material: EPK  
 Shape: Dogbone  
 a/l: 0.183  
 Angle: 0.0  
 Consol.: Ko NC  
 345 kPa

Control: Stress  
 Loading: Static  
 Height: Variable  
 Beta: 90

Length: 12.342 (cm)  
 Volume: 171.168 (cm<sup>3</sup>)  
 Inner\_radius: 2.527 (cm)  
 Area: 13.855 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outer\_radius: 3.287 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-14.93	-0.00129	482.30	0.00000	136.29	0.000	0.00000
3	-36.60	-0.00330	482.30	0.00000	134.56	0.000	0.00000
4	-58.41	-0.00633	482.30	0.00000	132.40	0.000	0.00000
5	-81.03	-0.01346	482.30	0.00000	130.51	0.000	0.00000
6	-102.80	-0.02588	482.30	0.00000	129.34	0.000	0.00000
7	-125.50	-0.04410	482.30	0.00000	128.88	0.000	0.00000
8	-146.74	-0.06465	482.30	0.00000	128.88	0.000	0.00000
9	-169.70	-0.08866	482.30	0.00000	129.12	0.000	0.00000
10	-191.77	-0.11605	482.30	0.00000	129.41	0.000	0.00000
11	-213.90	-0.14637	482.30	0.00000	129.54	0.000	0.00000
12	-235.36	-0.18200	482.30	0.00000	129.72	0.000	0.00000
13	-255.3	-0.22364	482.30	0.00000	129.24	0.000	0.00000
14	-275.42	-0.26760	482.30	0.00000	127.90	0.000	0.00000
15	-294.38	-0.31196	482.30	0.00000	126.20	0.000	0.00000
16	-312.89	-0.35683	482.30	0.00000	123.98	0.000	0.00000
17	-330.61	-0.40578	482.30	0.00000	121.23	0.000	0.00000
18	-347.82	-0.45841	482.30	0.00000	118.17	0.000	0.00000
19	-363.68	-0.50970	482.30	0.00000	114.42	0.000	0.00000
20	-379.01	-0.56506	482.30	0.00000	110.17	0.000	0.00000
21	-393.06	-0.62053	482.30	0.00000	105.74	0.000	0.00000
22	-407.10	-0.67415	482.30	0.00000	101.25	0.000	0.00000
23	-420.81	-0.72675	482.30	0.00000	96.91	0.000	0.00000
24	-433.58	-0.77667	482.30	0.00000	92.83	0.000	0.00000
25	-445.12	-0.82482	482.30	0.00000	88.87	0.000	0.00000
26	-456.36	-0.87338	482.30	0.00000	84.86	0.000	0.00000
27	-466.77	-0.92092	482.30	0.00000	81.10	0.000	0.00000
28	-475.71	-0.96877	482.30	0.00000	77.58	0.000	0.00000
29	-485.34	-1.01447	482.30	0.00000	74.37	0.000	0.00000
30	-493.16	-1.05518	482.30	0.00000	71.50	0.000	0.00000
31	-500.38	-1.09574	482.30	0.00000	68.87	0.000	0.00000
32	-506.11	-1.13522	482.30	0.00000	66.56	0.000	0.00000
33	-511.73	-1.17538	482.30	0.00000	64.55	0.000	0.00000
34	-516.17	-1.21551	482.30	0.00000	62.88	0.000	0.00000
35	-519.15	-1.25457	482.30	0.00000	61.53	0.000	0.00000
36	-521.51	-1.28905	482.30	0.00000	60.48	0.000	0.00000
37	-523.36	-1.31593	482.30	0.00000	59.66	0.000	0.00000
38	-524.67	-1.33516	482.30	0.00000	59.07	0.000	0.00000
39	-525.46	-1.34671	482.30	0.00000	58.72	0.000	0.00000
40	-525.72	-1.35056	482.30	0.00000	58.60	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-10.76	-0.00010	0.00	0.00000	346.0	335.3	0.00005	-0.00010
3	-26.39	-0.00027	0.00	0.00000	347.7	321.3	0.00013	-0.00027
4	-42.12	-0.00051	0.00	0.00000	349.9	307.8	0.00026	-0.00051
5	-58.47	-0.00109	0.00	0.00000	351.8	293.3	0.00055	-0.00109
6	-74.26	-0.00210	0.00	0.00000	353.0	278.7	0.00105	-0.00210
7	-90.79	-0.00357	0.00	0.00000	353.4	262.6	0.00178	-0.00357
8	-106.33	-0.00522	0.00	0.00000	353.4	247.1	0.00261	-0.00522
9	-123.20	-0.00716	0.00	0.00000	353.2	230.0	0.00358	-0.00716
10	-139.53	-0.00936	0.00	0.00000	352.9	213.4	0.00468	-0.00936
11	-156.01	-0.01179	0.00	0.00000	352.8	196.7	0.00589	-0.01179
12	-172.15	-0.01464	0.00	0.00000	352.6	180.4	0.00732	-0.01464
13	-187.39	-0.01796	0.00	0.00000	353.1	165.7	0.00898	-0.01796
14	-202.83	-0.02145	0.00	0.00000	354.4	151.6	0.01073	-0.02145
15	-217.56	-0.02496	0.00	0.00000	356.1	138.5	0.01248	-0.02496
16	-232.06	-0.02850	0.00	0.00000	358.3	126.3	0.01425	-0.02850
17	-246.17	-0.03243	0.00	0.00000	361.1	114.9	0.01621	-0.03243
18	-260.03	-0.03647	0.00	0.00000	364.1	104.1	0.01823	-0.03647
19	-272.98	-0.04047	0.00	0.00000	367.9	94.9	0.02023	-0.04047
20	-285.71	-0.04477	0.00	0.00000	372.1	86.4	0.02238	-0.04477
21	-297.57	-0.04906	0.00	0.00000	376.6	79.0	0.02453	-0.04906
22	-309.47	-0.05318	0.00	0.00000	381.1	71.6	0.02659	-0.05318
23	-321.19	-0.05722	0.00	0.00000	385.4	64.2	0.02861	-0.05722
24	-332.20	-0.06103	0.00	0.00000	389.5	57.3	0.03051	-0.06103
25	-342.29	-0.06469	0.00	0.00000	393.4	51.1	0.03235	-0.06469
26	-352.23	-0.06837	0.00	0.00000	397.4	45.2	0.03419	-0.06837
27	-361.57	-0.07196	0.00	0.00000	401.2	39.6	0.03598	-0.07196
28	-369.82	-0.07557	0.00	0.00000	404.7	34.9	0.03778	-0.07557
29	-378.60	-0.07899	0.00	0.00000	407.9	29.3	0.03950	-0.07899
30	-385.87	-0.08204	0.00	0.00000	410.8	24.9	0.04102	-0.08204
31	-392.71	-0.08506	0.00	0.00000	413.4	20.7	0.04253	-0.08506
32	-398.37	-0.08799	0.00	0.00000	415.7	17.4	0.04400	-0.08799
33	-404.00	-0.09097	0.00	0.00000	417.7	13.8	0.04548	-0.09097
34	-408.71	-0.09393	0.00	0.00000	419.4	10.7	0.04697	-0.09393
35	-412.26	-0.09681	0.00	0.00000	420.8	8.5	0.04841	-0.09681
36	-415.18	-0.09934	0.00	0.00000	421.8	6.6	0.04967	-0.09934
37	-417.47	-0.10131	0.00	0.00000	422.6	5.2	0.05066	-0.10131
38	-419.11	-0.10272	0.00	0.00000	423.2	4.1	0.05136	-0.10272
39	-420.09	-0.10356	0.00	0.00000	423.6	3.5	0.05178	-0.10356
40	-420.42	-0.10385	0.00	0.00000	423.7	3.3	0.05192	-0.10385

Test Name: 3f\_02/06/90

Material: EPK  
 Shape: Dogbone  
 a/l: 0.183  
 Angle: 0.0  
 Consol.: Ko NC  
 345 kPa

Control: Stress  
 Loading: Static  
 Height: Fixed  
 Beta: 45

Length: 12.339 (cm)  
 Volume: 172.695 (cm<sup>3</sup>)  
 Inner\_radius: 2.540 (cm)

Area: 13.981 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outter\_radius: 3.302 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	2.92	0.00004	482.30	0.00000	137.58	0.239	0.00012
3	5.93	0.00007	482.30	0.00000	137.50	0.481	0.00049
4	8.91	0.00010	482.30	0.00000	137.50	0.856	0.00124
5	12.97	0.00014	482.30	0.00000	137.64	1.285	0.00221
6	17.96	0.00019	482.30	0.00000	138.07	1.724	0.00349
7	24.40	0.00028	482.30	0.00000	139.03	2.168	0.00512
8	32.80	0.00039	482.30	0.00000	140.26	2.601	0.00712
9	43.07	0.00050	482.30	0.00000	141.77	3.020	0.00932
10	53.72	0.00058	482.30	0.00000	143.33	3.438	0.01209
11	63.97	0.00064	482.30	0.00000	145.17	3.830	0.01512
12	74.16	0.00069	482.30	0.00000	147.08	4.217	0.01865
13	84.54	0.00071	482.30	0.00000	149.10	4.596	0.02259
14	94.68	0.00069	482.30	0.00000	151.20	4.972	0.02734
15	103.94	0.00068	482.30	0.00000	153.31	5.336	0.03233
16	112.84	0.00068	482.30	0.00000	155.43	5.658	0.03800
17	121.90	0.00070	482.30	0.00000	157.47	5.998	0.04358
18	131.28	0.00071	482.30	0.00000	159.44	6.378	0.05123
19	139.92	0.00073	482.30	0.00000	161.46	6.710	0.05923
20	147.61	0.00076	482.30	0.00000	163.40	6.997	0.06844
21	154.58	0.00082	482.30	0.00000	165.17	7.299	0.07782
22	161.26	0.00090	482.30	0.00000	166.71	7.708	0.09054
23	167.26	0.00100	482.30	0.00000	168.29	8.042	0.10506
24	172.25	0.00111	482.30	0.00000	169.76	8.358	0.12072
25	175.44	0.00123	482.30	0.00000	170.89	8.681	0.13890
26	177.27	0.00132	482.30	0.00000	171.69	8.931	0.15732
27	176.97	0.00138	482.30	0.00000	172.19	9.197	0.17320
28	175.05	0.00145	482.30	0.00000	172.13	9.459	0.19480
29	170.59	0.00158	482.30	0.00000	171.41	9.735	0.22153
30	164.31	0.00175	482.30	0.00000	170.42	9.958	0.24884
31	155.38	0.00188	482.30	0.00000	169.20	10.144	0.27297
32	143.41	0.00186	482.30	0.00000	167.81	10.286	0.29546
33	129.01	0.00163	482.30	0.00000	165.96	10.400	0.32433
34	109.38	0.00134	482.30	0.00000	163.30	10.472	0.36388
35	86.49	0.00131	482.30	0.00000	160.66	10.460	0.40702
36	64.94	0.00166	482.30	0.00000	158.27	10.460	0.44506
37	47.23	0.00221	482.30	0.00000	155.97	10.444	0.48093
38	34.90	0.00268	482.30	0.00000	154.31	10.436	0.50560
39	27.16	0.00297	482.30	0.00000	153.20	10.440	0.52368
40	24.59	0.00311	482.30	0.00000	152.81	10.442	0.53014

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	2.08	0.00000	5.78	0.00003	351.6	339.9	0.00002	-0.00001
3	4.23	0.00001	11.64	0.00012	358.7	335.1	0.00006	-0.00006
4	6.37	0.00001	20.71	0.00029	368.9	327.0	0.00015	-0.00015
5	9.27	0.00001	31.07	0.00053	380.7	317.9	0.00027	-0.00026
6	12.83	0.00002	41.71	0.00083	392.8	308.4	0.00042	-0.00041
7	17.43	0.00002	52.44	0.00122	405.1	298.8	0.00062	-0.00060
8	23.43	0.00003	62.90	0.00170	417.7	289.8	0.00086	-0.00084
9	30.76	0.00004	73.05	0.00222	430.6	281.3	0.00112	-0.00110
10	38.37	0.00005	83.15	0.00288	443.5	272.8	0.00145	-0.00143
11	45.69	0.00005	92.64	0.00360	455.4	264.6	0.00181	-0.00179
12	52.97	0.00006	101.99	0.00444	467.1	256.3	0.00223	-0.00221
13	60.38	0.00006	111.16	0.00538	478.6	248.2	0.00270	-0.00267
14	67.63	0.00006	120.26	0.00651	489.8	240.0	0.00327	-0.00324
15	74.24	0.00005	129.06	0.00770	500.4	231.8	0.00386	-0.00384
16	80.59	0.00006	136.85	0.00905	509.8	224.5	0.00454	-0.00451
17	87.07	0.00006	145.06	0.01038	519.8	216.9	0.00520	-0.00517
18	93.77	0.00006	154.26	0.01220	531.0	208.5	0.00611	-0.00608
19	99.94	0.00006	162.28	0.01410	540.6	201.0	0.00707	-0.00704
20	105.43	0.00006	169.23	0.01630	548.9	194.4	0.00816	-0.00813
21	110.41	0.00007	176.54	0.01853	557.3	187.4	0.00928	-0.00925
22	115.18	0.00007	186.43	0.02156	568.3	178.1	0.01080	-0.01076
23	119.46	0.00008	194.49	0.02501	577.2	170.3	0.01253	-0.01249
24	123.02	0.00009	202.15	0.02874	585.3	162.7	0.01439	-0.01435
25	125.31	0.00010	209.95	0.03307	593.2	155.0	0.01656	-0.01651
26	126.61	0.00011	215.98	0.03746	599.0	148.8	0.01876	-0.01870
27	126.40	0.00011	222.43	0.04124	604.5	142.1	0.02065	-0.02059
28	125.03	0.00012	228.76	0.04638	609.8	135.5	0.02322	-0.02316
29	121.83	0.00013	235.42	0.05275	615.0	128.6	0.02641	-0.02634
30	117.35	0.00014	240.82	0.05925	618.4	122.7	0.02966	-0.02959
31	110.97	0.00015	245.31	0.06500	620.1	117.1	0.03254	-0.03246
32	102.42	0.00015	248.75	0.07035	619.7	111.7	0.03521	-0.03514
33	92.14	0.00013	251.50	0.07723	618.1	106.7	0.03865	-0.03858
34	78.12	0.00011	253.27	0.08664	614.3	101.8	0.04335	-0.04329
35	61.77	0.00011	252.98	0.09691	607.4	97.7	0.04848	-0.04843
36	46.38	0.00013	252.97	0.10597	601.2	93.2	0.05302	-0.05295
37	33.73	0.00018	252.56	0.11452	596.3	90.1	0.05731	-0.05722
38	24.92	0.00022	252.34	0.12040	593.1	87.8	0.06026	-0.06015
39	19.40	0.00024	252.44	0.12471	591.4	86.2	0.06242	-0.06230
40	17.56	0.00025	252.48	0.12625	590.9	85.6	0.06319	-0.06306



Test Name: 6f\_06/21/90

Material: EPK  
 Shape: Dogbone  
 a/l: 0.183  
 Angle: 0.0  
 Consol.: Ko NC  
 345 kPa

Control: Deform  
 Loading: Static  
 Height: Fixed  
 Beta: 45

Length: 12.671 (cm)  
 Volume: 177.335 (cm<sup>3</sup>)  
 Inner\_radius: 2.540 (cm)

Area: 13.981 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outter\_radius: 3.302 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	0.16	0.00000	482.30	0.00000	137.80	0.184	0.00027
3	0.85	0.00000	482.30	0.00000	137.81	0.736	0.00131
4	4.20	0.00000	482.30	0.00000	137.85	1.518	0.00325
5	12.09	0.00000	482.30	0.00000	137.98	2.224	0.00597
6	22.58	0.00000	482.30	0.00000	138.37	2.839	0.00950
7	34.52	0.00000	482.30	0.00000	139.10	3.395	0.01378
8	46.77	0.00000	482.30	0.00000	140.18	3.904	0.01880
9	58.16	0.00000	482.30	0.00000	141.59	4.363	0.02453
10	68.63	0.00000	482.30	0.00000	143.37	4.810	0.03086
11	78.58	0.00000	482.30	0.00000	145.46	5.202	0.03763
12	87.85	0.00000	482.30	0.00000	147.84	5.578	0.04522
13	96.48	0.00000	482.30	0.00000	150.49	5.922	0.05395
14	104.03	0.00000	482.30	0.00000	153.27	6.244	0.06352
15	110.79	0.00000	482.30	0.00000	156.27	6.557	0.07416
16	116.86	0.00000	482.30	0.00000	159.30	6.839	0.08555
17	121.77	0.00000	482.30	0.00000	162.31	7.108	0.09719
18	126.25	0.00000	482.30	0.00000	165.19	7.360	0.10939
19	129.72	0.00000	482.30	0.00000	167.96	7.601	0.12252
20	132.37	0.00000	482.30	0.00000	170.54	7.836	0.13689
21	133.53	0.00000	482.30	0.00000	172.79	8.050	0.15179
22	134.09	0.00000	482.30	0.00000	174.77	8.260	0.16731
23	134.05	0.00000	482.30	0.00000	176.32	8.463	0.18430
24	133.23	0.00000	482.30	0.00000	177.65	8.638	0.20185
25	131.41	0.00000	482.30	0.00000	178.52	8.800	0.21912
26	128.45	0.00000	482.30	0.00000	178.92	8.958	0.23678
27	124.23	0.00000	482.30	0.00000	178.94	9.103	0.25364
28	118.41	0.00000	482.30	0.00000	178.54	9.231	0.27462
29	110.30	0.00000	482.30	0.00000	177.75	9.347	0.29605
30	100.67	0.00000	482.30	0.00000	176.45	9.455	0.31764
31	89.65	0.00000	482.30	0.00000	174.89	9.558	0.34036
32	76.04	0.00000	482.30	0.00000	173.01	9.632	0.36363
33	59.53	0.00000	482.30	0.00000	170.59	9.647	0.38801
34	44.17	0.00000	482.30	0.00000	168.12	9.578	0.41432
35	28.25	0.00000	482.30	0.00000	166.08	9.420	0.43976
36	9.34	0.00000	482.30	0.00000	163.90	9.294	0.46570
37	-9.27	0.00000	482.30	0.00000	161.88	9.164	0.49338
38	-26.78	0.00000	482.30	0.00000	159.98	9.119	0.52274
39	-37.88	0.00000	482.30	0.00000	158.00	9.144	0.55189
40	-45.77	0.00000	482.30	0.00000	156.28	9.133	0.57786

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	0.12	0.00000	4.46	0.00006	349.0	340.1	0.00003	-0.00003
3	0.61	0.00000	17.81	0.00030	362.6	327.0	0.00015	-0.00015
4	3.00	0.00000	36.72	0.00075	382.7	309.2	0.00038	-0.00038
5	8.64	0.00000	53.79	0.00138	402.6	294.7	0.00069	-0.00069
6	16.13	0.00000	68.67	0.00220	421.1	282.8	0.00110	-0.00110
7	24.66	0.00000	82.11	0.00319	438.6	272.5	0.00160	-0.00160
8	33.41	0.00000	94.43	0.00436	454.7	262.9	0.00218	-0.00218
9	41.54	0.00000	105.53	0.00569	469.0	253.9	0.00284	-0.00284
10	49.02	0.00000	116.34	0.00715	482.3	244.6	0.00358	-0.00358
11	56.13	0.00000	125.82	0.00872	493.8	236.0	0.00436	-0.00436
12	62.75	0.00000	134.93	0.01048	504.4	227.3	0.00524	-0.00524
13	68.92	0.00000	143.23	0.01251	513.6	219.0	0.00625	-0.00625
14	74.31	0.00000	151.04	0.01473	521.7	210.6	0.00736	-0.00736
15	79.13	0.00000	158.60	0.01719	529.1	202.1	0.00860	-0.00860
16	83.48	0.00000	165.43	0.01983	535.4	194.1	0.00992	-0.00992
17	86.98	0.00000	171.93	0.02253	540.8	186.1	0.01127	-0.01127
18	90.18	0.00000	178.02	0.02536	545.8	178.6	0.01268	-0.01268
19	92.66	0.00000	183.86	0.02840	550.3	171.1	0.01420	-0.01420
20	94.55	0.00000	189.54	0.03173	554.4	163.7	0.01587	-0.01587
21	95.38	0.00000	194.72	0.03519	557.7	156.7	0.01759	-0.01759
22	95.78	0.00000	199.80	0.03879	560.9	150.0	0.01939	-0.01939
23	95.76	0.00000	204.70	0.04273	564.1	143.6	0.02136	-0.02136
24	95.16	0.00000	208.92	0.04680	566.5	138.0	0.02340	-0.02340
25	93.86	0.00000	212.85	0.05080	568.7	132.8	0.02540	-0.02540
26	91.75	0.00000	216.67	0.05489	570.7	127.8	0.02745	-0.02745
27	88.74	0.00000	220.19	0.05880	572.3	123.1	0.02940	-0.02940
28	84.58	0.00000	223.29	0.06366	573.3	118.8	0.03183	-0.03183
29	78.79	0.00000	226.09	0.06863	573.4	114.4	0.03432	-0.03432
30	71.91	0.00000	228.70	0.07364	573.3	110.3	0.03682	-0.03682
31	64.04	0.00000	231.19	0.07891	572.8	106.0	0.03945	-0.03945
32	54.31	0.00000	232.98	0.08430	571.0	101.9	0.04215	-0.04215
33	42.52	0.00000	233.34	0.08995	567.3	98.7	0.04498	-0.04498
34	31.55	0.00000	231.66	0.09605	562.2	97.8	0.04803	-0.04803
35	20.18	0.00000	227.86	0.10195	554.4	98.2	0.05098	-0.05098
36	6.67	0.00000	224.80	0.10797	546.6	96.9	0.05398	-0.05398
37	-6.62	0.00000	221.66	0.11438	538.8	95.4	0.05719	-0.05719
38	-19.13	0.00000	220.58	0.12119	533.5	92.0	0.06059	-0.06059
39	-27.06	0.00000	221.19	0.12795	532.4	89.2	0.06397	-0.06397
40	-32.70	0.00000	220.90	0.13397	531.2	88.2	0.06698	-0.06698

Test Name: 56\_04/17/91

Material: EPK  
Shape: Dogbone  
a/l: 0.1  
Angle: 45.0  
Consol.: Ko NC  
345 kPa

Length: 12.443 (cm)  
Volume: 172.740 (cm<sup>3</sup>)  
Inner\_radius: 2.530 (cm)

Area: 13.868 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.289 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-0.14	-0.00001	482.30	0.00000	137.79	0.224	0.00037
3	-0.61	-0.00004	482.30	0.00000	137.75	0.889	0.00151
4	-1.08	-0.00032	482.30	0.00000	137.70	1.737	0.00345
5	-0.95	-0.00117	482.30	0.00000	137.65	2.470	0.00614
6	0.30	-0.00273	482.30	0.00000	137.63	3.104	0.00956
7	1.24	-0.00491	482.30	0.00000	137.70	3.664	0.01399
8	2.53	-0.00776	482.30	0.00000	137.91	4.176	0.01898
9	3.39	-0.01122	482.30	0.00000	138.30	4.638	0.02444
10	4.52	-0.01533	482.30	0.00000	138.77	5.087	0.03052
11	5.24	-0.02001	482.30	0.00000	139.53	5.483	0.03751
12	5.35	-0.02511	482.30	0.00000	140.51	5.862	0.04533
13	5.39	-0.03050	482.30	0.00000	141.68	6.206	0.05399
14	6.01	-0.03618	482.30	0.00000	142.99	6.518	0.06388
15	6.39	-0.04205	482.30	0.00000	144.40	6.834	0.07475
16	7.00	-0.04816	482.30	0.00000	145.91	7.136	0.08663
17	7.45	-0.05436	482.30	0.00000	147.46	7.417	0.09925
18	8.11	-0.06066	482.30	0.00000	149.01	7.679	0.11226
19	8.39	-0.06705	482.30	0.00000	150.49	7.929	0.12598
20	8.12	-0.07368	482.30	0.00000	151.83	8.162	0.14034
21	8.29	-0.08047	482.30	0.00000	152.98	8.374	0.15565
22	8.91	-0.08721	482.30	0.00000	153.94	8.592	0.17168
23	10.03	-0.09386	482.30	0.00000	154.70	8.814	0.18959
24	10.93	-0.10044	482.30	0.00000	155.24	9.001	0.20808
25	11.73	-0.10706	482.30	0.00000	155.54	9.202	0.22671
26	12.16	-0.11376	482.30	0.00000	155.59	9.278	0.24638
27	12.79	-0.12043	482.30	0.00000	155.45	9.398	0.26686
28	13.35	-0.12691	482.30	0.00000	155.09	9.767	0.28889
29	13.51	-0.13325	482.30	0.00000	154.59	9.951	0.31132
30	13.89	-0.13890	482.30	0.00000	153.99	10.082	0.33449
31	14.35	-0.14332	482.30	0.00000	153.37	10.162	0.35879
32	14.40	-0.14655	482.30	0.00000	152.73	10.260	0.38350
33	13.81	-0.14896	482.30	0.00000	152.03	10.348	0.40914
34	12.28	-0.14998	482.30	0.00000	151.56	10.343	0.43500
35	10.64	-0.14877	482.30	0.00000	151.43	10.340	0.46209
36	9.00	-0.14515	482.30	0.00000	151.34	10.362	0.49095
37	9.11	-0.13840	482.30	0.00000	151.30	10.384	0.51869
38	10.72	-0.12965	482.30	0.00000	151.31	10.416	0.54632
39	11.10	-0.11990	482.30	0.00000	151.25	10.411	0.57621
40	9.40	-0.10852	482.30	0.00000	151.24	10.366	0.60730

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-0.10	-0.00000	5.48	0.00009	349.9	339.0	0.00004	-0.00004
3	-0.44	-0.00000	21.78	0.00036	366.1	322.5	0.00018	-0.00018
4	-0.78	-0.00003	42.55	0.00081	386.8	301.7	0.00040	-0.00041
5	-0.68	-0.00009	60.51	0.00144	404.8	283.8	0.00070	-0.00075
6	0.22	-0.00022	76.06	0.00225	420.8	268.7	0.00108	-0.00119
7	0.89	-0.00039	89.81	0.00329	434.9	255.2	0.00157	-0.00177
8	1.82	-0.00062	102.38	0.00446	447.7	242.9	0.00212	-0.00243
9	2.45	-0.00090	113.75	0.00574	459.0	231.5	0.00272	-0.00317
10	3.26	-0.00123	124.81	0.00716	470.0	220.3	0.00339	-0.00401
11	3.78	-0.00161	134.61	0.00880	479.3	210.0	0.00416	-0.00496
12	3.86	-0.00202	144.01	0.01062	487.7	199.7	0.00502	-0.00603
13	3.89	-0.00245	152.55	0.01264	495.1	190.0	0.00597	-0.00719
14	4.34	-0.00290	160.35	0.01495	501.8	181.1	0.00706	-0.00851
15	4.61	-0.00337	168.23	0.01748	508.5	172.0	0.00826	-0.00994
16	5.06	-0.00386	175.78	0.02024	514.7	163.1	0.00956	-0.01149
17	5.39	-0.00436	182.85	0.02318	520.4	154.7	0.01095	-0.01313
18	5.87	-0.00486	189.45	0.02619	525.7	146.7	0.01238	-0.01481
19	6.07	-0.00537	195.78	0.02937	530.6	139.0	0.01389	-0.01657
20	5.88	-0.00590	201.68	0.03269	535.1	131.7	0.01546	-0.01841
21	6.01	-0.00645	207.09	0.03623	539.4	125.2	0.01714	-0.02036
22	6.46	-0.00698	212.67	0.03993	544.3	118.9	0.01890	-0.02239
23	7.28	-0.00751	218.33	0.04406	549.6	112.9	0.02086	-0.02462
24	7.94	-0.00804	223.12	0.04832	554.2	107.9	0.02289	-0.02691
25	8.52	-0.00857	228.28	0.05260	559.3	102.7	0.02493	-0.02922
26	8.83	-0.00910	230.36	0.05713	561.5	100.7	0.02709	-0.03164
27	9.30	-0.00963	233.52	0.06182	565.1	97.9	0.02934	-0.03415
28	9.72	-0.01015	242.88	0.06688	575.0	89.1	0.03176	-0.03683
29	9.83	-0.01065	247.66	0.07201	580.3	84.9	0.03422	-0.03955
30	10.12	-0.01110	251.07	0.07732	584.5	82.2	0.03677	-0.04232
31	10.45	-0.01145	253.22	0.08289	587.4	80.9	0.03946	-0.04519
32	10.49	-0.01171	255.75	0.08857	590.6	79.0	0.04222	-0.04807
33	10.06	-0.01190	258.01	0.09446	593.4	77.2	0.04509	-0.05104
34	8.95	-0.01198	257.92	0.10042	593.2	77.3	0.04801	-0.05400
35	7.75	-0.01188	257.81	0.10669	592.6	76.9	0.05111	-0.05706
36	6.56	-0.01160	258.25	0.11340	592.5	76.0	0.05447	-0.06026
37	6.64	-0.01106	258.59	0.11991	592.9	75.7	0.05776	-0.06329
38	7.80	-0.01037	259.11	0.12643	594.0	75.8	0.06110	-0.06528
39	8.07	-0.00959	258.69	0.13350	593.8	76.4	0.06474	-0.06953
40	6.83	-0.00868	257.21	0.14089	591.7	77.2	0.06858	-0.07292

Test Name: 57\_04/19/91

Material: EPK  
Shape: Dogbone  
a/l: 0.1  
Angle: -45.0  
Consol.: Ko NC  
345 kPa

Length: 12.461 (cm)  
Volume: 173.146 (cm<sup>3</sup>)  
Inner\_radius: 2.530 (cm)

Area: 13.880 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.289 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	0.04	-0.00000	482.30	0.00000	137.81	0.222	0.00057
3	0.33	-0.00002	482.30	0.00000	137.84	0.863	0.00216
4	0.61	-0.00012	482.30	0.00000	137.87	1.723	0.00433
5	1.23	-0.00042	482.30	0.00000	137.89	2.657	0.00726
6	1.74	-0.00115	482.30	0.00000	137.85	3.567	0.01096
7	2.22	-0.00271	482.30	0.00000	137.78	4.346	0.01559
8	4.06	-0.00568	482.30	0.00000	137.80	4.850	0.02095
9	5.38	-0.00962	482.30	0.00000	137.97	5.251	0.02716
10	5.37	-0.01433	482.30	0.00000	138.02	5.616	0.03417
11	5.19	-0.01959	482.30	0.00000	138.51	5.939	0.04154
12	5.13	-0.02531	482.30	0.00000	139.20	6.246	0.04885
13	5.34	-0.03142	482.30	0.00000	140.08	6.543	0.05920
14	5.36	-0.03787	482.30	0.00000	141.08	6.824	0.07133
15	5.09	-0.04468	482.30	0.00000	142.15	7.090	0.08313
16	4.29	-0.05180	482.30	0.00000	143.24	7.354	0.09553
17	4.26	-0.05917	482.30	0.00000	144.30	7.602	0.10896
18	4.64	-0.06658	482.30	0.00000	145.28	7.844	0.12335
19	5.05	-0.07419	482.30	0.00000	146.15	8.077	0.13892
20	4.74	-0.08183	482.30	0.00000	146.88	8.295	0.15504
21	4.57	-0.08918	482.30	0.00000	147.45	8.504	0.17140
22	5.03	-0.09670	482.30	0.00000	147.82	8.717	0.18836
23	5.53	-0.10434	482.30	0.00000	147.94	8.912	0.20704
24	5.45	-0.11205	482.30	0.00000	147.72	9.107	0.22691
25	5.51	-0.11977	482.30	0.00000	147.17	9.304	0.24793
26	5.92	-0.12744	482.30	0.00000	146.29	9.491	0.27001
27	6.35	-0.13505	482.30	0.00000	145.25	9.676	0.29267
28	6.91	-0.14236	482.30	0.00000	144.04	9.841	0.31582
29	7.64	-0.14786	482.30	0.00000	142.98	9.934	0.34000
30	7.82	-0.15071	482.30	0.00000	142.32	9.969	0.36585
31	5.97	-0.15168	482.30	0.00000	141.86	9.984	0.39196
32	3.15	-0.15037	482.30	0.00000	141.41	10.002	0.41843
33	2.53	-0.14504	482.30	0.00000	141.03	9.981	0.44647
34	1.05	-0.13717	482.30	0.00000	140.95	9.975	0.47526
35	-1.62	-0.12803	482.30	0.00000	140.94	10.021	0.50426
36	-4.13	-0.11813	482.30	0.00000	140.76	10.085	0.53299
37	-6.63	-0.10722	482.30	0.00000	140.46	10.099	0.56337
38	-8.33	-0.09374	482.30	0.00000	140.35	10.093	0.59511
39	-7.65	-0.07742	482.30	0.00000	140.38	10.074	0.62992
40	-5.11	-0.05936	482.30	0.00000	140.65	10.030	0.66557

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	0.03	-0.00000	5.42	0.00013	349.9	339.1	0.00007	-0.00007
3	0.24	-0.00000	21.10	0.00051	365.7	323.5	0.00025	-0.00025
4	0.44	-0.00001	42.13	0.00102	386.8	302.5	0.00051	-0.00051
5	0.89	-0.00003	64.98	0.00171	409.8	279.9	0.00084	-0.00086
6	1.25	-0.00009	87.25	0.00257	432.3	257.8	0.00127	-0.00131
7	1.60	-0.00022	106.33	0.00366	451.7	239.0	0.00178	-0.00189
8	2.92	-0.00046	118.72	0.00491	464.7	227.2	0.00237	-0.00260
9	3.87	-0.00077	128.58	0.00637	474.9	217.7	0.00304	-0.00343
10	3.87	-0.00115	137.59	0.00801	483.8	208.6	0.00381	-0.00438
11	3.74	-0.00157	145.61	0.00973	491.3	200.0	0.00461	-0.00540
12	3.70	-0.00203	153.23	0.01143	498.2	191.7	0.00541	-0.00642
13	3.85	-0.00252	160.64	0.01385	504.8	183.5	0.00655	-0.00781
14	3.87	-0.00303	167.67	0.01667	510.8	175.5	0.00788	-0.00940
15	3.68	-0.00358	174.34	0.01942	516.3	167.6	0.00918	-0.01097
16	3.10	-0.00415	180.99	0.02229	521.6	159.6	0.01054	-0.01261
17	3.08	-0.00474	187.26	0.02541	526.8	152.3	0.01201	-0.01437
18	3.35	-0.00533	193.39	0.02873	532.1	145.3	0.01358	-0.01625
19	3.66	-0.00594	199.32	0.03233	537.3	138.6	0.01528	-0.01825
20	3.44	-0.00655	204.89	0.03605	542.0	132.2	0.01704	-0.02032
21	3.31	-0.00713	210.22	0.03982	546.7	126.3	0.01883	-0.02240
22	3.65	-0.00773	215.69	0.04372	552.0	120.6	0.02068	-0.02455
23	4.01	-0.00834	220.71	0.04801	557.1	115.7	0.02272	-0.02689
24	3.96	-0.00895	225.75	0.05257	562.3	110.8	0.02489	-0.02937
25	4.00	-0.00957	230.84	0.05739	568.0	106.3	0.02719	-0.03197
26	4.30	-0.01017	235.71	0.06244	573.9	102.4	0.02960	-0.03468
27	4.62	-0.01078	240.53	0.06762	579.9	98.8	0.03207	-0.03746
28	5.03	-0.01136	244.84	0.07291	585.6	95.9	0.03460	-0.04028
29	5.56	-0.01180	247.32	0.07844	589.4	94.8	0.03726	-0.04315
30	5.70	-0.01202	248.26	0.08437	591.1	94.6	0.04013	-0.04614
31	4.35	-0.01210	248.67	0.09038	591.3	93.9	0.04307	-0.04912
32	2.29	-0.01199	249.07	0.09650	591.1	93.0	0.04608	-0.05208
33	1.84	-0.01157	248.40	0.10303	590.6	93.8	0.04935	-0.05514
34	0.76	-0.01095	248.01	0.10978	589.7	93.7	0.05276	-0.05824
35	-1.18	-0.01022	248.89	0.11661	589.7	91.9	0.05625	-0.06136
36	-3.00	-0.00943	250.18	0.12339	590.2	89.9	0.05974	-0.06446
37	-4.81	-0.00857	250.20	0.13060	589.6	89.2	0.06347	-0.06776
38	-6.04	-0.00749	249.66	0.13818	588.6	89.3	0.06744	-0.07119
39	-5.54	-0.00619	248.69	0.14655	587.9	90.4	0.07187	-0.07497
40	-3.69	-0.00475	247.08	0.15517	586.9	92.7	0.07648	-0.07886

Test Name: 58\_04/23/91

Material: EPK  
Shape: Dogbone  
a/l: 0.1  
Angle: 22.5  
Consol.: Ko NC  
345 kPa

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.408 (cm)  
Volume: 172.325 (cm<sup>3</sup>)  
Inner\_radius: 2.530 (cm)

Area: 13.874 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.289 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-1.17	0.00000	482.30	0.00000	137.78	0.233	0.00038
3	-1.64	-0.00001	482.30	0.00000	137.76	0.849	0.00142
4	-2.40	-0.00027	482.30	0.00000	137.64	1.659	0.00300
5	-1.26	-0.00106	482.30	0.00000	137.55	2.376	0.00510
6	-1.11	-0.00250	482.30	0.00000	137.48	2.992	0.00801
7	0.14	-0.00456	482.30	0.00000	137.49	3.545	0.01158
8	0.60	-0.00731	482.30	0.00000	137.63	4.044	0.01612
9	1.44	-0.01064	482.30	0.00000	137.95	4.513	0.02198
10	2.13	-0.01457	482.30	0.00000	138.49	4.946	0.02825
11	2.55	-0.01903	482.30	0.00000	139.29	5.335	0.03550
12	2.60	-0.02388	482.30	0.00000	140.34	5.716	0.04359
13	3.23	-0.02909	482.30	0.00000	141.56	6.054	0.05255
14	3.69	-0.03449	482.30	0.00000	142.98	6.339	0.06189
15	5.74	-0.03991	482.30	0.00000	144.60	6.358	0.07216
16	4.96	-0.04557	482.30	0.00000	146.27	6.946	0.08340
17	4.96	-0.05138	482.30	0.00000	147.94	7.203	0.09526
18	6.91	-0.05725	482.30	0.00000	149.63	7.266	0.10825
19	7.33	-0.06327	482.30	0.00000	151.16	7.504	0.12186
20	6.48	-0.06955	482.30	0.00000	152.63	7.798	0.13652
21	6.79	-0.07571	482.30	0.00000	153.99	8.161	0.15193
22	6.42	-0.08197	482.30	0.00000	155.08	8.164	0.16759
23	5.57	-0.08850	482.30	0.00000	155.91	8.615	0.18402
24	5.54	-0.09502	482.30	0.00000	156.38	8.819	0.20118
25	5.34	-0.10157	482.30	0.00000	156.62	9.006	0.21942
26	5.27	-0.10820	482.30	0.00000	156.65	9.201	0.23870
27	5.83	-0.11452	482.30	0.00000	156.29	9.387	0.25890
28	6.76	-0.12041	482.30	0.00000	155.73	9.548	0.27994
29	8.36	-0.12582	482.30	0.00000	155.08	9.467	0.30127
30	8.18	-0.13056	482.30	0.00000	154.30	9.839	0.32315
31	6.93	-0.13394	482.30	0.00000	153.51	9.921	0.34654
32	5.44	-0.13332	482.30	0.00000	153.00	9.925	0.37081
33	4.50	-0.12902	482.30	0.00000	152.41	9.969	0.39639
34	3.18	-0.12194	482.30	0.00000	152.26	9.965	0.42142
35	-1.24	-0.11034	482.30	0.00000	152.35	9.801	0.44754
36	-2.55	-0.09069	482.30	0.00000	153.53	9.366	0.47518
37	0.59	-0.06703	482.30	0.00000	156.04	9.066	0.50316
38	0.28	-0.04386	482.30	0.00000	158.28	8.916	0.53118
39	-1.29	-0.01997	482.30	0.00000	159.74	8.831	0.55899
40	-0.23	0.00414	482.30	0.00000	160.86	8.772	0.58810

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-0.84	0.00000	5.71	0.00009	349.8	338.4	0.00004	-0.00004
3	-1.18	-0.00000	20.79	0.00033	364.7	323.2	0.00017	-0.00017
4	-1.73	-0.00002	40.62	0.00071	384.4	303.2	0.00035	-0.00036
5	-0.91	-0.00009	58.15	0.00120	402.4	286.1	0.00058	-0.00063
6	-0.80	-0.00020	73.26	0.00189	417.7	271.2	0.00091	-0.00101
7	0.10	-0.00037	86.81	0.00273	431.7	258.1	0.00130	-0.00148
8	0.44	-0.00059	99.06	0.00380	444.0	245.8	0.00180	-0.00210
9	1.04	-0.00086	110.60	0.00518	455.5	234.3	0.00245	-0.00288
10	1.54	-0.00117	121.26	0.00665	465.8	223.3	0.00315	-0.00373
11	1.84	-0.00153	130.87	0.00835	474.8	213.1	0.00395	-0.00471
12	1.87	-0.00192	140.31	0.01025	483.2	202.6	0.00484	-0.00580
13	2.33	-0.00234	148.70	0.01235	490.6	193.2	0.00583	-0.00700
14	2.66	-0.00278	155.80	0.01453	496.5	184.9	0.00686	-0.00825
15	4.14	-0.00321	156.36	0.01693	496.1	183.4	0.00800	-0.00960
16	3.58	-0.00367	170.94	0.01956	508.8	166.9	0.00924	-0.01107
17	3.58	-0.00413	177.38	0.02232	513.5	158.8	0.01055	-0.01262
18	5.00	-0.00460	179.08	0.02535	514.3	156.1	0.01198	-0.01429
19	5.30	-0.00509	185.07	0.02851	518.9	148.7	0.01349	-0.01603
20	4.69	-0.00559	192.46	0.03192	524.5	139.5	0.01510	-0.01790
21	4.92	-0.00608	201.58	0.03549	532.4	129.2	0.01680	-0.01984
22	4.65	-0.00658	201.79	0.03912	531.4	127.7	0.01853	-0.02182
23	4.04	-0.00711	213.11	0.04293	541.5	115.3	0.02034	-0.02389
24	4.02	-0.00763	218.35	0.04689	546.3	109.6	0.02223	-0.02604
25	3.88	-0.00815	223.14	0.05110	550.8	104.5	0.02423	-0.02831
26	3.83	-0.00868	228.15	0.05555	555.7	99.4	0.02636	-0.03070
27	4.23	-0.00919	232.93	0.06020	561.1	95.2	0.02858	-0.03318
28	4.91	-0.00966	237.09	0.06505	566.1	91.9	0.03091	-0.03574
29	6.08	-0.01009	235.25	0.06996	565.5	95.0	0.03327	-0.03831
30	5.95	-0.01047	244.62	0.07500	575.6	86.3	0.03570	-0.04093
31	5.04	-0.01074	246.76	0.08040	578.1	84.5	0.03831	-0.04368
32	3.96	-0.01069	246.85	0.08603	578.1	84.4	0.04109	-0.04643
33	3.27	-0.01034	247.81	0.09202	579.3	83.7	0.04407	-0.04924
34	2.31	-0.00978	247.50	0.09791	578.7	83.7	0.04706	-0.05195
35	-0.90	-0.00885	243.09	0.10412	572.6	86.4	0.05027	-0.05470
36	-1.85	-0.00728	231.76	0.11082	559.6	96.1	0.05386	-0.05750
37	0.43	-0.00539	223.70	0.11768	550.2	102.8	0.05763	-0.06032
38	0.20	-0.00353	219.37	0.12457	543.5	104.8	0.06146	-0.06323
39	-0.93	-0.00161	216.67	0.13147	538.8	105.4	0.06535	-0.06615
40	-0.16	0.00033	214.60	0.13872	536.0	106.8	0.06945	-0.06928



**APPENDIX VI**  
**TESTS LISTED IN TABLE 2.4**

Test Name: 87\_07/25/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko OC  
OCR-4

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 0

Length: 12.130 (cm)  
Volume: 170.029 (cm<sup>3</sup>)  
Inner\_radius: 2.542 (cm)

Area: 14.003 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outer\_radius: 3.205 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	27.81	0.00171	378.95	0.00000	173.11	0.000	0.00000
3	60.27	0.00374	378.95	0.00000	175.60	0.000	0.00000
4	91.35	0.00638	378.95	0.00000	178.98	0.000	0.00000
5	126.70	0.00984	378.95	0.00000	183.34	0.000	0.00000
6	160.62	0.01461	378.95	0.00000	188.30	0.000	0.00000
7	195.52	0.02076	378.95	0.00000	193.20	0.000	0.00000
8	229.12	0.02786	378.95	0.00000	197.91	0.000	0.00000
9	262.13	0.03590	378.95	0.00000	202.24	0.000	0.00000
10	295.38	0.04479	378.95	0.00000	206.22	0.000	0.00000
11	329.22	0.05480	378.95	0.00000	209.62	0.000	0.00000
12	363.94	0.06594	378.95	0.00000	212.23	0.000	0.00000
13	395.13	0.07785	378.95	0.00000	214.26	0.000	0.00000
14	426.61	0.08977	378.95	0.00000	215.36	0.000	0.00000
15	456.55	0.10168	378.95	0.00000	216.09	0.000	0.00000
16	487.60	0.11369	378.95	0.00000	216.16	0.000	0.00000
17	515.58	0.12575	378.95	0.00000	215.92	0.000	0.00000
18	546.04	0.13842	378.95	0.00000	215.32	0.000	0.00000
19	573.24	0.15140	378.95	0.00000	214.34	0.000	0.00000
20	599.35	0.16434	378.95	0.00000	212.95	0.000	0.00000
21	625.07	0.17758	378.95	0.00000	211.20	0.000	0.00000
22	649.05	0.19190	378.95	0.00000	209.20	0.000	0.00000
23	669.43	0.20597	378.95	0.00000	206.85	0.000	0.00000
24	692.34	0.22251	378.95	0.00000	204.43	0.000	0.00000
25	713.03	0.23944	378.95	0.00000	201.44	0.000	0.00000
26	733.93	0.25782	378.95	0.00000	198.33	0.000	0.00000
27	753.42	0.27748	378.95	0.00000	194.98	0.000	0.00000
28	772.22	0.30135	378.95	0.00000	191.49	0.000	0.00000
29	789.86	0.32695	378.95	0.00000	187.85	0.000	0.00000
30	804.82	0.35503	378.95	0.00000	184.20	0.000	0.00000
31	819.54	0.38547	378.95	0.00000	180.60	0.000	0.00000
32	833.24	0.41737	378.95	0.00000	177.29	0.000	0.00000
33	842.54	0.45321	378.95	0.00000	174.15	0.000	0.00000
34	854.84	0.49254	378.95	0.00000	171.30	0.000	0.00000
35	865.36	0.53516	378.95	0.00000	168.69	0.000	0.00000
36	874.12	0.57943	378.95	0.00000	166.44	0.000	0.00000
37	881.99	0.62190	378.95	0.00000	164.55	0.000	0.00000
38	889.16	0.66254	378.95	0.00000	163.17	0.000	0.00000
39	892.81	0.69140	378.95	0.00000	162.30	0.000	0.00000
40	894.44	0.70265	378.95	0.00000	162.00	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	19.83	0.00014	0.00	0.00000	225.7	205.8	0.00014	-0.00007
3	42.97	0.00031	0.00	0.00000	246.3	203.3	0.00031	-0.00015
4	65.12	0.00053	0.00	0.00000	265.1	200.0	0.00053	-0.00026
5	90.29	0.00081	0.00	0.00000	285.9	195.6	0.00081	-0.00041
6	114.41	0.00121	0.00	0.00000	305.1	190.6	0.00121	-0.00060
7	139.20	0.00171	0.00	0.00000	325.0	185.8	0.00171	-0.00086
8	163.03	0.00230	0.00	0.00000	344.1	181.0	0.00230	-0.00115
9	186.39	0.00296	0.00	0.00000	363.1	176.7	0.00296	-0.00148
10	209.88	0.00370	0.00	0.00000	382.6	172.7	0.00370	-0.00185
11	233.74	0.00453	0.00	0.00000	403.1	169.3	0.00453	-0.00226
12	258.14	0.00545	0.00	0.00000	424.9	166.7	0.00545	-0.00273
13	279.99	0.00644	0.00	0.00000	444.7	164.7	0.00644	-0.00322
14	302.00	0.00743	0.00	0.00000	465.6	163.6	0.00743	-0.00371
15	322.87	0.00842	0.00	0.00000	485.7	162.9	0.00842	-0.00421
16	344.48	0.00942	0.00	0.00000	507.3	162.8	0.00942	-0.00471
17	363.89	0.01042	0.00	0.00000	526.9	163.0	0.01042	-0.00521
18	384.98	0.01148	0.00	0.00000	548.6	163.6	0.01148	-0.00574
19	403.72	0.01256	0.00	0.00000	568.3	164.6	0.01256	-0.00628
20	421.66	0.01364	0.00	0.00000	587.7	166.0	0.01364	-0.00682
21	439.26	0.01475	0.00	0.00000	607.0	167.8	0.01475	-0.00737
22	455.56	0.01595	0.00	0.00000	625.3	169.8	0.01595	-0.00797
23	469.32	0.01713	0.00	0.00000	641.4	172.1	0.01713	-0.00856
24	484.71	0.01851	0.00	0.00000	659.2	174.5	0.01851	-0.00926
25	498.48	0.01994	0.00	0.00000	676.0	177.5	0.01994	-0.00997
26	512.30	0.02148	0.00	0.00000	692.9	180.6	0.02148	-0.01074
27	525.03	0.02314	0.00	0.00000	709.0	184.0	0.02314	-0.01157
28	537.05	0.02516	0.00	0.00000	724.5	187.5	0.02516	-0.01258
29	548.13	0.02732	0.00	0.00000	739.2	191.1	0.02732	-0.01366
30	557.18	0.02971	0.00	0.00000	751.9	194.7	0.02971	-0.01485
31	565.91	0.03229	0.00	0.00000	764.3	198.4	0.03229	-0.01615
32	573.80	0.03501	0.00	0.00000	775.5	201.7	0.03501	-0.01751
33	578.43	0.03808	0.00	0.00000	783.2	204.8	0.03808	-0.01904
34	584.90	0.04145	0.00	0.00000	792.6	207.7	0.04145	-0.02073
35	589.93	0.04512	0.00	0.00000	800.2	210.3	0.04512	-0.02256
36	593.62	0.04895	0.00	0.00000	806.1	212.5	0.04895	-0.02447
37	596.77	0.05263	0.00	0.00000	811.2	214.4	0.05263	-0.02632
38	599.49	0.05617	0.00	0.00000	815.3	215.8	0.05617	-0.02808
39	600.44	0.05869	0.00	0.00000	817.1	216.7	0.05869	-0.02934
40	600.95	0.05967	0.00	0.00000	817.9	217.0	0.05967	-0.02984

Test Name: 89\_08/01/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 30

Length: 12.145 (cm)  
Volume: 170.791 (cm<sup>3</sup>)  
Inner\_radius: 2.546 (cm)

Area: 14.048 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.310 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	3.59	0.00006	378.95	0.00000	172.31	0.114	0.00011
3	14.35	0.00043	378.95	0.00000	172.48	0.457	0.00072
4	32.44	0.00140	378.95	0.00000	172.78	1.013	0.00212
5	54.56	0.00251	378.95	0.00000	173.22	1.648	0.00409
6	76.31	0.00284	378.95	0.00000	173.94	2.222	0.00669
7	95.15	0.00426	378.95	0.00000	174.86	2.701	0.00990
8	113.01	0.00720	378.95	0.00000	175.90	3.153	0.01379
9	131.13	0.01055	378.95	0.00000	176.89	3.593	0.01829
10	148.81	0.01429	378.95	0.00000	178.06	4.035	0.02337
11	165.85	0.01835	378.95	0.00000	178.71	4.470	0.02857
12	183.19	0.02272	378.95	0.00000	179.07	4.899	0.03436
13	200.47	0.02742	378.95	0.00000	179.20	5.319	0.04051
14	217.15	0.03236	378.95	0.00000	178.92	5.730	0.04717
15	233.40	0.03747	378.95	0.00000	178.23	6.138	0.05442
16	249.71	0.04294	378.95	0.00000	177.11	6.538	0.06249
17	265.74	0.04873	378.95	0.00000	175.54	6.926	0.07139
18	281.03	0.05492	378.95	0.00000	173.56	7.295	0.08110
19	295.71	0.06118	378.95	0.00000	171.18	7.647	0.09116
20	309.30	0.06770	378.95	0.00000	168.46	7.978	0.10146
21	322.12	0.07436	378.95	0.00000	165.46	8.281	0.11196
22	333.93	0.08152	378.95	0.00000	162.22	8.561	0.12381
23	344.71	0.08875	378.95	0.00000	158.87	8.828	0.13610
24	354.82	0.09633	378.95	0.00000	155.37	9.079	0.14869
25	364.33	0.10441	378.95	0.00000	151.80	9.314	0.16207
26	372.80	0.11305	378.95	0.00000	148.23	9.536	0.17649
27	379.98	0.12204	378.95	0.00000	144.58	9.741	0.19111
28	385.94	0.13094	378.95	0.00000	140.95	9.913	0.20638
29	392.14	0.13999	378.95	0.00000	137.45	10.058	0.22208
30	397.39	0.14972	378.95	0.00000	133.98	10.177	0.23822
31	401.03	0.16077	378.95	0.00000	130.54	10.265	0.25503
32	402.49	0.17445	378.95	0.00000	127.17	10.303	0.27214
33	403.46	0.19219	378.95	0.00000	124.08	10.314	0.29062
34	403.09	0.21298	378.95	0.00000	121.24	10.319	0.30938
35	400.10	0.23499	378.95	0.00000	118.73	10.288	0.32797
36	393.75	0.26097	378.95	0.00000	116.44	10.189	0.34747
37	387.61	0.29145	378.95	0.00000	114.45	10.101	0.36709
38	383.54	0.32404	378.95	0.00000	112.87	10.055	0.38859
39	376.13	0.35913	378.95	0.00000	111.69	9.949	0.41019
40	365.21	0.39545	378.95	0.00000	110.72	9.794	0.43103

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	2.55	0.00001	2.74	0.00003	210.9	204.9	0.00002	-0.00001
3	10.20	0.00004	10.98	0.00017	223.7	199.5	0.00010	-0.00008
4	23.06	0.00012	24.32	0.00051	244.6	190.8	0.00030	-0.00024
5	38.78	0.00021	39.56	0.00099	269.2	181.1	0.00057	-0.00047
6	54.24	0.00023	53.34	0.00162	292.0	172.3	0.00089	-0.00077
7	67.62	0.00035	64.84	0.00240	311.0	164.8	0.00132	-0.00114
8	80.29	0.00059	75.65	0.00335	328.8	157.6	0.00188	-0.00158
9	93.14	0.00087	86.17	0.00444	346.6	150.7	0.00253	-0.00210
10	105.66	0.00118	96.73	0.00568	363.9	143.5	0.00327	-0.00268
11	117.73	0.00151	107.10	0.00694	381.3	136.9	0.00403	-0.00327
12	129.99	0.00187	117.31	0.00835	399.0	130.8	0.00487	-0.00394
13	142.19	0.00226	127.29	0.00985	416.7	125.0	0.00578	-0.00465
14	153.96	0.00267	137.06	0.01148	434.2	119.8	0.00675	-0.00541
15	165.41	0.00309	146.72	0.01326	451.9	115.0	0.00779	-0.00625
16	176.89	0.00354	156.18	0.01523	469.8	110.8	0.00895	-0.00718
17	188.15	0.00402	165.33	0.01741	487.7	107.3	0.01022	-0.00821
18	198.88	0.00453	174.00	0.01980	505.2	104.4	0.01160	-0.00933
19	209.16	0.00505	182.26	0.02227	522.5	102.2	0.01302	-0.01050
20	218.65	0.00559	189.98	0.02481	539.0	100.6	0.01449	-0.01169
21	227.59	0.00614	197.04	0.02740	554.8	99.7	0.01599	-0.01292
22	235.79	0.00673	203.51	0.03032	569.8	99.4	0.01766	-0.01430
23	243.26	0.00733	209.68	0.03336	584.1	99.3	0.01940	-0.01573
24	250.24	0.00796	215.43	0.03648	597.8	99.6	0.02119	-0.01720
25	256.77	0.00863	220.80	0.03981	610.9	100.1	0.02309	-0.01877
26	262.55	0.00935	225.81	0.04339	623.2	100.8	0.02514	-0.02046
27	267.41	0.01010	230.42	0.04704	634.5	101.7	0.02724	-0.02219
28	271.41	0.01084	234.22	0.05086	644.4	103.0	0.02941	-0.02399
29	275.56	0.01159	237.38	0.05479	653.7	104.8	0.03164	-0.02584
30	279.02	0.01240	239.90	0.05884	662.0	107.0	0.03396	-0.02776
31	281.31	0.01333	241.62	0.06308	668.6	109.5	0.03642	-0.02976
32	282.01	0.01447	242.11	0.06743	673.0	112.6	0.03903	-0.03180
33	282.28	0.01595	241.82	0.07217	676.0	116.0	0.04200	-0.03403
34	281.53	0.01769	241.31	0.07703	677.8	119.1	0.04516	-0.03631
35	278.92	0.01954	239.92	0.08188	677.2	122.2	0.04837	-0.03860
36	273.90	0.02172	236.83	0.08704	673.0	125.9	0.05190	-0.04104
37	268.93	0.02429	233.90	0.09231	668.8	129.2	0.05569	-0.04355
38	265.38	0.02704	231.86	0.09812	665.9	131.6	0.05985	-0.04633
39	259.48	0.03002	228.40	0.10403	659.7	134.3	0.06418	-0.04918
40	251.17	0.03310	223.79	0.10983	650.4	137.2	0.06854	-0.05199

Test Name: 86\_07/23/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.122 (cm)  
Volume: 170.166 (cm<sup>3</sup>)  
Inner\_radius: 2.544 (cm)

Area: 14.023 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.307 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.07	0.00001	378.95	0.00000	172.20	0.204	0.00034
3	-0.66	-0.00004	378.95	0.00000	171.99	0.777	0.00156
4	-1.35	-0.00042	378.95	0.00000	171.59	1.397	0.00352
5	-0.85	-0.00135	378.95	0.00000	170.86	1.945	0.00630
6	0.34	-0.00295	378.95	0.00000	169.78	2.450	0.00988
7	1.49	-0.00525	378.95	0.00000	168.10	2.927	0.01476
8	1.94	-0.00826	378.95	0.00000	165.95	3.386	0.02047
9	3.13	-0.01194	378.95	0.00000	163.38	3.828	0.02643
10	4.27	-0.01641	378.95	0.00000	160.48	4.264	0.03247
11	4.91	-0.02167	378.95	0.00000	157.10	4.688	0.04030
12	5.63	-0.02778	378.95	0.00000	153.52	5.106	0.04934
13	6.69	-0.03464	378.95	0.00000	149.55	5.508	0.05931
14	7.21	-0.04225	378.95	0.00000	145.17	5.891	0.06997
15	7.75	-0.05053	378.95	0.00000	140.57	6.243	0.08142
16	8.40	-0.05960	378.95	0.00000	136.02	6.598	0.09398
17	9.38	-0.06885	378.95	0.00000	131.38	6.941	0.10689
18	10.57	-0.07854	378.95	0.00000	126.89	7.254	0.12037
19	11.63	-0.08863	378.95	0.00000	122.16	7.563	0.13511
20	12.72	-0.09910	378.95	0.00000	117.73	7.872	0.15107
21	12.91	-0.11036	378.95	0.00000	113.02	8.156	0.16748
22	13.00	-0.12181	378.95	0.00000	108.41	8.428	0.18494
23	12.97	-0.13352	378.95	0.00000	103.83	8.685	0.20352
24	12.30	-0.14559	378.95	0.00000	99.28	8.919	0.22220
25	11.59	-0.15676	378.95	0.00000	95.03	9.084	0.24213
26	9.51	-0.16628	378.95	0.00000	91.23	9.116	0.26339
27	7.69	-0.17173	378.95	0.00000	88.22	9.143	0.28601
28	7.93	-0.17423	378.95	0.00000	85.65	9.226	0.30869
29	8.81	-0.17515	378.95	0.00000	83.17	9.312	0.33160
30	10.68	-0.17452	378.95	0.00000	80.95	9.354	0.35575
31	12.10	-0.17383	378.95	0.00000	78.95	9.423	0.38143
32	12.45	-0.17279	378.95	0.00000	77.19	9.461	0.40788
33	11.54	-0.17154	378.95	0.00000	75.44	9.477	0.43391
34	7.53	-0.17034	378.95	0.00000	73.65	9.492	0.46178
35	2.20	-0.16860	378.95	0.00000	72.34	9.462	0.49215
36	-0.65	-0.16408	378.95	0.00000	71.20	9.486	0.52185
37	-2.72	-0.15851	378.95	0.00000	70.22	9.486	0.55194
38	-5.07	-0.15283	378.95	0.00000	69.44	9.483	0.58231
39	-5.89	-0.14667	378.95	0.00000	69.24	9.464	0.61419
40	-8.29	-0.13927	378.95	0.00000	69.02	9.516	0.64709

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.05	0.00000	4.91	0.00008	211.6	201.8	0.00004	-0.00004
3	-0.47	-0.00000	18.70	0.00038	225.4	188.0	0.00019	-0.00019
4	-0.96	-0.00003	33.63	0.00085	240.5	173.2	0.00042	-0.00044
5	-0.60	-0.00011	46.83	0.00153	254.6	161.0	0.00074	-0.00080
6	0.24	-0.00024	59.01	0.00240	268.3	150.3	0.00115	-0.00127
7	1.06	-0.00043	70.52	0.00358	281.9	140.9	0.00171	-0.00193
8	1.38	-0.00068	81.61	0.00496	295.3	132.1	0.00236	-0.00270
9	2.23	-0.00098	92.31	0.00640	309.0	124.4	0.00304	-0.00353
10	3.05	-0.00135	102.89	0.00787	322.9	117.1	0.00372	-0.00440
11	3.50	-0.00179	113.18	0.00976	336.8	110.4	0.00461	-0.00550
12	4.02	-0.00229	123.37	0.01193	350.8	104.1	0.00564	-0.00678
13	4.78	-0.00285	133.19	0.01433	365.0	98.6	0.00677	-0.00819
14	5.16	-0.00348	142.58	0.01689	379.0	93.8	0.00797	-0.00971
15	5.55	-0.00416	151.26	0.01964	392.4	89.9	0.00926	-0.01134
16	6.01	-0.00490	160.05	0.02264	406.0	85.9	0.01068	-0.01313
17	6.72	-0.00566	168.56	0.02572	419.5	82.3	0.01213	-0.01496
18	7.58	-0.00646	176.37	0.02893	432.3	79.4	0.01364	-0.01687
19	8.34	-0.00729	184.12	0.03243	445.1	76.8	0.01529	-0.01893
20	9.13	-0.00814	191.89	0.03622	457.7	73.8	0.01708	-0.02115
21	9.28	-0.00906	199.08	0.04010	469.7	71.4	0.01890	-0.02343
22	9.35	-0.01000	206.01	0.04422	481.3	69.2	0.02085	-0.02584
23	9.34	-0.01095	212.59	0.04859	492.4	67.2	0.02291	-0.02838
24	8.86	-0.01194	218.65	0.05297	502.8	65.4	0.02497	-0.03094
25	8.36	-0.01285	222.98	0.05764	511.1	65.1	0.02718	-0.03360
26	6.86	-0.01362	224.04	0.06263	515.2	67.1	0.02953	-0.03635
27	5.56	-0.01407	224.85	0.06796	518.4	68.6	0.03206	-0.03910
28	5.73	-0.01427	226.96	0.07333	523.1	69.2	0.03463	-0.04176
29	6.36	-0.01435	229.10	0.07876	528.1	69.8	0.03724	-0.04441
30	7.71	-0.01429	230.11	0.08450	532.0	71.7	0.04002	-0.04716
31	8.74	-0.01424	231.80	0.09061	536.2	72.5	0.04299	-0.05011
32	8.99	-0.01415	232.69	0.09691	539.0	73.5	0.04606	-0.05314
33	8.33	-0.01405	233.06	0.10311	540.8	74.6	0.04911	-0.05613
34	5.44	-0.01395	233.40	0.10975	541.4	74.6	0.05237	-0.05935
35	1.59	-0.01381	232.60	0.11699	540.0	74.8	0.05595	-0.06286
36	-0.47	-0.01345	233.06	0.12412	540.6	74.4	0.05951	-0.06623
37	-1.96	-0.01299	232.92	0.13136	540.7	74.8	0.06315	-0.06965
38	-3.66	-0.01253	232.67	0.13869	540.4	75.0	0.06685	-0.07311
39	-4.25	-0.01203	232.02	0.14639	539.6	75.6	0.07074	-0.07676
40	-5.97	-0.01142	233.10	0.15437	540.1	73.8	0.07481	-0.08052

Test Name: 90\_08/13/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 60

Length: 12.193 (cm)  
Volume: 172.769 (cm<sup>3</sup>)  
Inner\_radius: 2.556 (cm)

Area: 14.155 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outer\_radius: 3.322 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-4.74	-0.00010	378.95	0.00000	172.11	0.120	0.00002
3	-18.69	-0.00088	378.95	0.00000	171.71	0.536	0.00077
4	-36.70	-0.00270	378.95	0.00000	171.03	1.048	0.00219
5	-50.95	-0.00571	378.95	0.00000	170.07	1.418	0.00420
6	-62.56	-0.01033	378.95	0.00000	168.67	1.729	0.00709
7	-72.85	-0.01680	378.95	0.00000	166.85	2.010	0.01036
8	-82.98	-0.02505	378.95	0.00000	164.60	2.281	0.01442
9	-92.75	-0.03496	378.95	0.00000	161.93	2.559	0.01928
10	-102.61	-0.04661	378.95	0.00000	158.74	2.824	0.02473
11	-112.30	-0.06037	378.95	0.00000	155.16	3.075	0.03087
12	-121.50	-0.07603	378.95	0.00000	151.17	3.311	0.03777
13	-130.39	-0.09262	378.95	0.00000	146.83	3.576	0.04537
14	-138.33	-0.11008	378.95	0.00000	142.28	3.820	0.05350
15	-146.01	-0.12887	378.95	0.00000	137.64	4.055	0.06203
16	-153.45	-0.14811	378.95	0.00000	132.96	4.278	0.07104
17	-160.26	-0.16900	378.95	0.00000	128.28	4.482	0.08086
18	-166.81	-0.18985	378.95	0.00000	123.68	4.713	0.09141
19	-173.10	-0.21153	378.95	0.00000	119.12	4.929	0.10239
20	-179.85	-0.23366	378.95	0.00000	114.52	5.127	0.11397
21	-186.87	-0.25735	378.95	0.00000	109.90	5.294	0.12635
22	-193.77	-0.28271	378.95	0.00000	105.25	5.472	0.13961
23	-199.35	-0.30892	378.95	0.00000	100.60	5.648	0.15384
24	-204.37	-0.33423	378.95	0.00000	95.99	5.845	0.16822
25	-209.62	-0.35964	378.95	0.00000	91.47	6.027	0.18317
26	-215.87	-0.38695	378.95	0.00000	87.10	6.187	0.19902
27	-222.37	-0.41490	378.95	0.00000	82.69	6.321	0.21499
28	-228.53	-0.44358	378.95	0.00000	78.33	6.466	0.23172
29	-234.01	-0.47405	378.95	0.00000	73.99	6.605	0.24970
30	-238.38	-0.50362	378.95	0.00000	69.69	6.748	0.26865
31	-241.82	-0.53296	378.95	0.00000	65.50	6.858	0.28759
32	-242.81	-0.55927	378.95	0.00000	61.53	6.884	0.30713
33	-243.17	-0.57906	378.95	0.00000	57.97	6.886	0.32743
34	-244.91	-0.59554	378.95	0.00000	55.00	6.752	0.34790
35	-247.69	-0.61134	378.95	0.00000	52.51	6.828	0.36970
36	-249.92	-0.62765	378.95	0.00000	50.38	6.875	0.39237
37	-253.04	-0.64411	378.95	0.00000	48.33	6.952	0.41532
38	-256.93	-0.66219	378.95	0.00000	46.14	7.046	0.43803
39	-256.39	-0.68145	378.95	0.00000	44.13	7.037	0.46223
40	-252.08	-0.69278	378.95	0.00000	42.48	6.927	0.48776



	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-3.34	-0.00001	2.86	0.00001	208.5	201.8	0.00000	-0.00001
3	-13.19	-0.00007	12.72	0.00019	215.0	186.3	0.00009	-0.00013
4	-25.90	-0.00022	24.89	0.00053	223.0	166.9	0.00026	-0.00037
5	-35.97	-0.00047	33.70	0.00102	229.1	152.7	0.00050	-0.00073
6	-44.17	-0.00085	41.10	0.00172	234.9	141.5	0.00086	-0.00128
7	-51.47	-0.00138	47.81	0.00251	240.7	132.1	0.00128	-0.00197
8	-58.67	-0.00205	54.33	0.00349	246.8	123.3	0.00181	-0.00284
9	-65.63	-0.00286	61.01	0.00465	253.5	114.9	0.00245	-0.00388
10	-72.67	-0.00382	67.44	0.00596	260.5	107.3	0.00318	-0.00509
11	-79.63	-0.00494	73.57	0.00743	267.6	100.3	0.00401	-0.00648
12	-86.26	-0.00622	79.35	0.00907	275.0	94.3	0.00495	-0.00806
13	-92.69	-0.00757	85.87	0.01087	283.4	88.2	0.00597	-0.00975
14	-98.48	-0.00899	91.95	0.01279	291.7	83.1	0.00705	-0.01154
15	-104.10	-0.01051	97.82	0.01480	300.1	78.5	0.00819	-0.01344
16	-109.58	-0.01207	103.44	0.01691	308.3	74.1	0.00937	-0.01541
17	-114.64	-0.01376	108.65	0.01920	316.2	70.5	0.01066	-0.01754
18	-119.53	-0.01545	114.54	0.02165	324.7	66.3	0.01199	-0.01972
19	-124.25	-0.01720	120.10	0.02419	332.9	62.5	0.01338	-0.02198
20	-129.32	-0.01898	125.26	0.02685	340.7	58.8	0.01482	-0.02431
21	-134.62	-0.02089	129.70	0.02968	347.9	55.6	0.01636	-0.02680
22	-139.89	-0.02292	134.47	0.03270	355.3	52.2	0.01799	-0.02945
23	-144.21	-0.02502	139.25	0.03592	363.1	49.4	0.01972	-0.03223
24	-148.15	-0.02704	144.54	0.03916	371.3	46.5	0.02143	-0.03495
25	-152.26	-0.02907	149.48	0.04251	379.1	43.6	0.02318	-0.03771
26	-157.14	-0.03124	153.95	0.04603	386.1	40.4	0.02503	-0.04066
27	-162.23	-0.03346	157.81	0.04956	392.6	37.7	0.02690	-0.04363
28	-167.11	-0.03573	162.00	0.05324	399.3	34.8	0.02884	-0.04671
29	-171.53	-0.03814	166.06	0.05716	406.1	32.3	0.03090	-0.04997
30	-175.14	-0.04047	170.26	0.06128	413.1	30.2	0.03301	-0.05325
31	-178.07	-0.04278	173.63	0.06538	419.5	29.3	0.03511	-0.05650
32	-179.17	-0.04485	174.84	0.06961	424.3	31.4	0.03719	-0.05961
33	-179.71	-0.04640	175.30	0.07403	428.1	34.1	0.03921	-0.06240
34	-181.23	-0.04769	172.22	0.07851	427.9	38.7	0.04118	-0.06503
35	-183.52	-0.04892	174.47	0.08327	431.8	37.6	0.04327	-0.06773
36	-185.40	-0.05019	176.02	0.08821	434.8	36.9	0.04544	-0.07054
37	-187.96	-0.05148	178.32	0.09319	438.2	35.1	0.04764	-0.07338
38	-191.12	-0.05288	181.11	0.09808	442.0	32.5	0.04985	-0.07629
39	-191.01	-0.05438	181.29	0.10327	444.2	34.4	0.05220	-0.07939
40	-187.96	-0.05526	178.69	0.10883	444.4	40.6	0.05458	-0.08222

Test Name: 88\_07/30/91

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko OC  
OCR-4

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 90

Length: 12.109 (cm)  
Volume: 170.683 (cm<sup>3</sup>)  
Inner\_radius: 2.549 (cm)

Area: 14.080 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.314 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-19.30	-0.00115	378.95	0.00000	170.93	0.000	0.00000
3	-40.70	-0.00324	378.95	0.00000	168.66	0.000	0.00000
4	-61.42	-0.00669	378.95	0.00000	165.67	0.000	0.00000
5	-82.88	-0.01461	378.95	0.00000	161.34	0.000	0.00000
6	-104.43	-0.02666	378.95	0.00000	156.01	0.000	0.00000
7	-124.86	-0.04269	378.95	0.00000	150.14	0.000	0.00000
8	-145.10	-0.06197	378.95	0.00000	144.15	0.000	0.00000
9	-164.73	-0.08445	378.95	0.00000	138.44	0.000	0.00000
10	-184.54	-0.11114	378.95	0.00000	132.64	0.000	0.00000
11	-204.08	-0.14150	378.95	0.00000	126.91	0.000	0.00000
12	-223.90	-0.17652	378.95	0.00000	121.15	0.000	0.00000
13	-243.62	-0.21416	378.95	0.00000	115.48	0.000	0.00000
14	-262.39	-0.25517	378.95	0.00000	109.75	0.000	0.00000
15	-278.64	-0.29700	378.95	0.00000	104.11	0.000	0.00000
16	-295.62	-0.33652	378.95	0.00000	98.98	0.000	0.00000
17	-314.56	-0.38726	378.95	0.00000	93.38	0.000	0.00000
18	-330.56	-0.43524	378.95	0.00000	88.00	0.000	0.00000
19	-345.01	-0.48255	378.95	0.00000	82.71	0.000	0.00000
20	-358.94	-0.52496	378.95	0.00000	77.94	0.000	0.00000
21	-374.01	-0.57736	378.95	0.00000	72.94	0.000	0.00000
22	-387.70	-0.62868	378.95	0.00000	68.06	0.000	0.00000
23	-400.55	-0.67540	378.95	0.00000	63.52	0.000	0.00000
24	-413.41	-0.72619	378.95	0.00000	59.09	0.000	0.00000
25	-425.27	-0.77801	378.95	0.00000	54.91	0.000	0.00000
26	-435.78	-0.82747	378.95	0.00000	50.96	0.000	0.00000
27	-444.94	-0.87348	378.95	0.00000	47.39	0.000	0.00000
28	-453.05	-0.91807	378.95	0.00000	44.04	0.000	0.00000
29	-461.26	-0.96329	378.95	0.00000	41.02	0.000	0.00000
30	-468.86	-1.00729	378.95	0.00000	38.29	0.000	0.00000
31	-475.08	-1.05160	378.95	0.00000	35.79	0.000	0.00000
32	-480.54	-1.09620	378.95	0.00000	33.64	0.000	0.00000
33	-484.81	-1.13749	378.95	0.00000	31.70	0.000	0.00000
34	-488.63	-1.17363	378.95	0.00000	30.05	0.000	0.00000
35	-492.20	-1.20311	378.95	0.00000	28.70	0.000	0.00000
36	-495.12	-1.22715	378.95	0.00000	27.65	0.000	0.00000
37	-497.40	-1.24784	378.95	0.00000	26.84	0.000	0.00000
38	-499.03	-1.27009	378.95	0.00000	26.23	0.000	0.00000
39	-500.01	-1.29330	378.95	0.00000	25.87	0.000	0.00000
40	-500.33	-1.31054	378.95	0.00000	25.77	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-13.69	-0.00009	0.00	0.00000	208.0	194.3	0.00005	-0.00009
3	-28.88	-0.00027	0.00	0.00000	210.3	181.4	0.00013	-0.00027
4	-43.59	-0.00055	0.00	0.00000	213.3	169.7	0.00028	-0.00055
5	-58.85	-0.00121	0.00	0.00000	217.6	158.8	0.00060	-0.00121
6	-74.23	-0.00220	0.00	0.00000	222.9	148.7	0.00110	-0.00220
7	-88.87	-0.00352	0.00	0.00000	228.8	139.9	0.00176	-0.00352
8	-103.44	-0.00510	0.00	0.00000	234.8	131.4	0.00255	-0.00510
9	-117.65	-0.00695	0.00	0.00000	240.5	122.9	0.00347	-0.00695
10	-132.09	-0.00914	0.00	0.00000	246.3	114.2	0.00457	-0.00914
11	-146.43	-0.01162	0.00	0.00000	252.0	105.6	0.00581	-0.01162
12	-161.12	-0.01447	0.00	0.00000	257.8	96.7	0.00724	-0.01447
13	-175.84	-0.01753	0.00	0.00000	263.5	87.6	0.00877	-0.01753
14	-190.02	-0.02085	0.00	0.00000	269.2	79.2	0.01043	-0.02085
15	-202.47	-0.02423	0.00	0.00000	274.8	72.4	0.01212	-0.02423
16	-215.50	-0.02741	0.00	0.00000	280.0	64.5	0.01371	-0.02741
17	-230.24	-0.03148	0.00	0.00000	285.6	55.3	0.01574	-0.03148
18	-242.88	-0.03531	0.00	0.00000	291.0	48.1	0.01766	-0.03531
19	-254.45	-0.03908	0.00	0.00000	296.2	41.8	0.01954	-0.03908
20	-265.62	-0.04244	0.00	0.00000	301.0	35.4	0.02122	-0.04244
21	-277.91	-0.04658	0.00	0.00000	306.0	28.1	0.02329	-0.04658
22	-289.26	-0.05061	0.00	0.00000	310.9	21.6	0.02531	-0.05061
23	-299.94	-0.05427	0.00	0.00000	315.4	15.5	0.02714	-0.05427
24	-310.80	-0.05824	0.00	0.00000	319.9	9.1	0.02912	-0.05824
25	-321.01	-0.06227	0.00	0.00000	324.0	3.0	0.03113	-0.06227
26	-330.20	-0.06610	0.00	0.00000	328.0	-2.2	0.03305	-0.06610
27	-338.34	-0.06965	0.00	0.00000	331.6	-6.8	0.03482	-0.06965
28	-345.69	-0.07308	0.00	0.00000	334.9	-10.8	0.03654	-0.07308
29	-353.17	-0.07654	0.00	0.00000	337.9	-15.2	0.03827	-0.07654
30	-360.20	-0.07990	0.00	0.00000	340.7	-19.5	0.03995	-0.07990
31	-366.22	-0.08328	0.00	0.00000	343.2	-23.1	0.04164	-0.08328
32	-371.68	-0.08666	0.00	0.00000	345.3	-26.4	0.04333	-0.08666
33	-376.15	-0.08978	0.00	0.00000	347.2	-28.9	0.04489	-0.08978
34	-380.15	-0.09251	0.00	0.00000	348.9	-31.3	0.04625	-0.09251
35	-383.78	-0.09472	0.00	0.00000	350.3	-33.5	0.04736	-0.09472
36	-386.75	-0.09653	0.00	0.00000	351.3	-35.5	0.04826	-0.09653
37	-389.14	-0.09808	0.00	0.00000	352.1	-37.0	0.04904	-0.09808
38	-391.06	-0.09974	0.00	0.00000	352.7	-38.3	0.04987	-0.09974
39	-392.51	-0.10147	0.00	0.00000	353.1	-39.4	0.05074	-0.10147
40	-393.27	-0.10276	0.00	0.00000	353.2	-40.1	0.05138	-0.10276

**APPENDIX VII**  
**TESTS LISTED IN TABLE 2.5**

Test Name: 67\_05/31/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Length: 12.142 (cm)  
Volume: 170.662 (cm<sup>3</sup>)  
Inner\_radius: 2.545 (cm)

Area: 14.040 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.309 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	28.74	0.00139	378.95	0.00000	174.44	0.000	0.00000
3	57.93	0.00326	378.95	0.00000	176.84	0.000	0.00000
4	89.97	0.00564	378.95	0.00000	180.27	0.000	0.00000
5	123.71	0.00909	378.95	0.00000	184.46	0.000	0.00000
6	158.89	0.01383	378.95	0.00000	189.19	0.000	0.00000
7	193.45	0.01950	378.95	0.00000	194.13	0.000	0.00000
8	227.98	0.02614	378.95	0.00000	198.87	0.000	0.00000
9	263.84	0.03373	378.95	0.00000	203.19	0.000	0.00000
10	298.68	0.04222	378.95	0.00000	207.08	0.000	0.00000
11	333.15	0.05188	378.95	0.00000	210.25	0.000	0.00000
12	366.40	0.06250	378.95	0.00000	212.73	0.000	0.00000
13	397.57	0.07251	378.95	0.00000	214.58	0.000	0.00000
14	429.45	0.08401	378.95	0.00000	215.88	0.000	0.00000
15	460.86	0.09549	378.95	0.00000	216.61	0.000	0.00000
16	490.15	0.10579	378.95	0.00000	216.89	0.000	0.00000
17	518.11	0.11691	378.95	0.00000	216.67	0.000	0.00000
18	544.59	0.12756	378.95	0.00000	216.17	0.000	0.00000
19	571.99	0.13894	378.95	0.00000	215.44	0.000	0.00000
20	599.30	0.15126	378.95	0.00000	214.34	0.000	0.00000
21	625.78	0.16324	378.95	0.00000	212.85	0.000	0.00000
22	651.73	0.17580	378.95	0.00000	211.09	0.000	0.00000
23	676.47	0.19004	378.95	0.00000	209.03	0.000	0.00000
24	699.38	0.20450	378.95	0.00000	206.62	0.000	0.00000
25	721.69	0.21916	378.95	0.00000	203.98	0.000	0.00000
26	742.27	0.23557	378.95	0.00000	201.06	0.000	0.00000
27	761.96	0.25280	378.95	0.00000	197.97	0.000	0.00000
28	780.81	0.27225	378.95	0.00000	194.76	0.000	0.00000
29	798.61	0.29277	378.95	0.00000	191.47	0.000	0.00000
30	815.52	0.31526	378.95	0.00000	188.15	0.000	0.00000
31	830.96	0.33946	378.95	0.00000	184.85	0.000	0.00000
32	844.46	0.36510	378.95	0.00000	181.63	0.000	0.00000
33	857.09	0.39120	378.95	0.00000	178.59	0.000	0.00000
34	868.46	0.42038	378.95	0.00000	175.78	0.000	0.00000
35	876.53	0.45464	378.95	0.00000	173.22	0.000	0.00000
36	880.77	0.49845	378.95	0.00000	171.01	0.000	0.00000
37	881.19	0.55648	378.95	0.00000	169.23	0.000	0.00000
38	878.79	0.62750	378.95	0.00000	167.91	0.000	0.00000
39	877.88	0.73474	378.95	0.00000	167.10	0.000	0.00000
40	877.58	1.17343	378.95	0.00000	166.83	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	20.44	0.00011	0.00	0.00000	225.0	204.5	0.00011	-0.00006
3	41.20	0.00027	0.00	0.00000	243.3	202.1	0.00027	-0.00013
4	63.96	0.00046	0.00	0.00000	262.6	198.7	0.00046	-0.00023
5	87.93	0.00075	0.00	0.00000	282.4	194.5	0.00075	-0.00037
6	112.89	0.00114	0.00	0.00000	302.6	189.8	0.00114	-0.00057
7	137.38	0.00161	0.00	0.00000	322.2	184.8	0.00161	-0.00080
8	161.81	0.00216	0.00	0.00000	341.9	180.1	0.00216	-0.00108
9	187.14	0.00278	0.00	0.00000	362.9	175.8	0.00278	-0.00139
10	211.70	0.00348	0.00	0.00000	383.6	171.9	0.00348	-0.00174
11	235.95	0.00428	0.00	0.00000	404.6	168.7	0.00428	-0.00214
12	259.27	0.00516	0.00	0.00000	425.5	166.2	0.00516	-0.00258
13	281.09	0.00599	0.00	0.00000	445.5	164.4	0.00599	-0.00299
14	303.34	0.00694	0.00	0.00000	466.4	163.1	0.00694	-0.00347
15	325.22	0.00790	0.00	0.00000	487.6	162.3	0.00790	-0.00395
16	345.60	0.00875	0.00	0.00000	507.7	162.1	0.00875	-0.00438
17	364.97	0.00967	0.00	0.00000	527.3	162.3	0.00967	-0.00484
18	383.29	0.01056	0.00	0.00000	546.1	162.8	0.01056	-0.00528
19	402.19	0.01151	0.00	0.00000	565.7	163.5	0.01151	-0.00575
20	420.96	0.01254	0.00	0.00000	585.6	164.6	0.01254	-0.00627
21	439.12	0.01353	0.00	0.00000	605.2	166.1	0.01353	-0.00677
22	456.85	0.01458	0.00	0.00000	624.7	167.9	0.01458	-0.00729
23	473.63	0.01577	0.00	0.00000	643.5	169.9	0.01577	-0.00789
24	489.08	0.01698	0.00	0.00000	661.4	172.3	0.01698	-0.00849
25	504.06	0.01821	0.00	0.00000	679.0	175.0	0.01821	-0.00911
26	517.72	0.01959	0.00	0.00000	695.6	177.9	0.01959	-0.00980
27	530.68	0.02104	0.00	0.00000	711.7	181.0	0.02104	-0.01052
28	542.92	0.02268	0.00	0.00000	727.1	184.2	0.02268	-0.01134
29	554.34	0.02441	0.00	0.00000	741.8	187.5	0.02441	-0.01220
30	565.00	0.02631	0.00	0.00000	755.8	190.8	0.02631	-0.01315
31	574.52	0.02835	0.00	0.00000	768.6	194.1	0.02835	-0.01418
32	582.59	0.03053	0.00	0.00000	779.9	197.3	0.03053	-0.01526
33	589.99	0.03275	0.00	0.00000	790.4	200.4	0.03275	-0.01637
34	596.33	0.03523	0.00	0.00000	799.5	203.2	0.03523	-0.01762
35	600.11	0.03816	0.00	0.00000	805.8	205.7	0.03816	-0.01908
36	600.76	0.04192	0.00	0.00000	808.7	207.9	0.04192	-0.02096
37	598.05	0.04691	0.00	0.00000	807.8	209.7	0.04691	-0.02346
38	592.76	0.05306	0.00	0.00000	803.8	211.0	0.05306	-0.02653
39	586.64	0.06242	0.00	0.00000	798.5	211.8	0.06242	-0.03121
40	563.88	0.10163	0.00	0.00000	776.0	212.1	0.10163	-0.05082

Test Name: 68\_06/05/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Length: 12.115 (cm)  
Volume: 170.909 (cm<sup>3</sup>)  
Inner\_radius: 2.550 (cm)

Area: 14.093 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.315 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	84.55	0.00508	378.95	0.00000	173.28	3.164	0.00524
3	133.50	0.01270	378.95	0.00000	176.38	4.520	0.01920
4	200.25	0.02540	378.95	0.00000	176.73	5.876	0.04014
5	240.30	0.03810	378.95	0.00000	174.32	7.006	0.06283
6	267.00	0.05080	378.95	0.00000	169.84	7.910	0.08552
7	289.25	0.06096	378.95	0.00000	164.67	8.362	0.10472
8	307.05	0.07366	378.95	0.00000	158.81	8.814	0.12741
9	315.95	0.08636	378.95	0.00000	153.65	9.153	0.15184
10	324.85	0.10160	378.95	0.00000	149.17	9.379	0.17279
11	333.75	0.12192	378.95	0.00000	141.25	9.718	0.19373
12	338.20	0.13716	378.95	0.00000	139.87	9.944	0.21468
13	347.10	0.15494	378.95	0.00000	136.42	9.944	0.24086
14	347.10	0.17526	378.95	0.00000	132.98	10.057	0.26180
15	342.65	0.19558	378.95	0.00000	129.88	9.944	0.28449
16	324.85	0.21590	378.95	0.00000	127.47	9.831	0.30718
17	315.95	0.24130	378.95	0.00000	124.71	9.831	0.32812
18	307.05	0.26163	378.95	0.00000	122.64	9.718	0.34907
19	307.05	0.28956	378.95	0.00000	120.92	9.718	0.37350
20	307.05	0.32004	378.95	0.00000	119.54	9.605	0.39794
21	307.05	0.35052	378.95	0.00000	118.16	9.379	0.41888

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	59.89	0.00042	75.57	0.00128	316.9	154.3	0.00082	-0.00061
3	94.50	0.00105	107.86	0.00468	367.6	132.1	0.00273	-0.00221
4	141.60	0.00210	140.00	0.00980	429.9	116.1	0.00567	-0.00462
5	169.74	0.00315	166.65	0.01537	476.5	102.5	0.00883	-0.00725
6	188.41	0.00420	187.86	0.02095	513.5	93.2	0.01199	-0.00989
7	203.94	0.00504	198.35	0.02569	539.3	93.2	0.01465	-0.01213
8	216.26	0.00610	208.74	0.03130	563.3	93.2	0.01783	-0.01478
9	222.29	0.00715	216.42	0.03736	579.7	93.2	0.02123	-0.01765
10	228.26	0.00842	221.34	0.04260	592.9	94.9	0.02432	-0.02011
11	234.12	0.01011	228.76	0.04788	611.7	97.8	0.02764	-0.02259
12	236.94	0.01139	233.64	0.05316	619.5	95.6	0.03077	-0.02507
13	242.81	0.01287	233.12	0.05978	626.8	101.1	0.03463	-0.02819
14	242.40	0.01457	235.17	0.06514	631.7	102.6	0.03800	-0.03071
15	238.89	0.01628	231.93	0.07097	629.4	107.6	0.04159	-0.03346
16	226.09	0.01798	228.71	0.07683	619.7	109.4	0.04521	-0.03622
17	219.43	0.02012	227.98	0.08233	617.0	111.0	0.04887	-0.03881
18	212.88	0.02183	224.78	0.08781	611.5	114.0	0.05232	-0.04140
19	212.38	0.02419	223.98	0.09429	612.1	116.3	0.05656	-0.04447
20	211.83	0.02677	220.52	0.10085	610.0	120.7	0.06097	-0.04758
21	211.28	0.02936	214.50	0.10657	605.5	127.3	0.06499	-0.05031



Test Name: 66\_05/29/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.050 (cm)  
Volume: 169.530 (cm<sup>3</sup>)  
Inner\_radius: 2.548 (cm)

Area: 14.055 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.310 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.21	0.00000	378.95	0.00000	172.23	0.133	0.00031
3	-0.77	0.00001	378.95	0.00000	172.11	0.520	0.00125
4	-2.15	-0.00009	378.95	0.00000	171.98	1.092	0.00282
5	-3.41	-0.00042	378.95	0.00000	171.56	1.603	0.00501
6	-3.63	-0.00111	378.95	0.00000	171.05	2.064	0.00784
7	-3.08	-0.00214	378.95	0.00000	170.23	2.512	0.01128
8	-2.46	-0.00354	378.95	0.00000	169.14	2.948	0.01536
9	-1.53	-0.00546	378.95	0.00000	167.70	3.374	0.02006
10	-1.08	-0.00792	378.95	0.00000	165.98	3.799	0.02539
11	-1.09	-0.01083	378.95	0.00000	163.89	4.203	0.03134
12	-0.63	-0.01424	378.95	0.00000	161.60	4.601	0.03793
13	-0.16	-0.01815	378.95	0.00000	158.83	4.988	0.04513
14	0.09	-0.02248	378.95	0.00000	155.98	5.356	0.05297
15	-0.05	-0.02720	378.95	0.00000	152.76	5.711	0.06143
16	-0.46	-0.03242	378.95	0.00000	149.31	6.053	0.07052
17	-0.87	-0.03815	378.95	0.00000	145.79	6.369	0.08024
18	-1.02	-0.04432	378.95	0.00000	142.20	6.664	0.09058
19	-1.07	-0.05043	378.95	0.00000	138.53	6.943	0.10155
20	-1.64	-0.05669	378.95	0.00000	134.89	7.215	0.11315
21	-2.07	-0.06346	378.95	0.00000	131.23	7.455	0.12537
22	-2.62	-0.06998	378.95	0.00000	127.61	7.645	0.13822
23	-3.35	-0.07681	378.95	0.00000	123.96	7.937	0.15170
24	-4.72	-0.08381	378.95	0.00000	120.32	8.164	0.16581
25	-5.72	-0.09080	378.95	0.00000	116.77	8.341	0.18054
26	-6.78	-0.09729	378.95	0.00000	113.39	8.244	0.19590
27	-8.42	-0.10299	378.95	0.00000	110.07	8.277	0.21188
28	-9.91	-0.10765	378.95	0.00000	107.00	8.340	0.22849
29	-10.64	-0.11064	378.95	0.00000	104.09	8.379	0.24573
30	-11.32	-0.11260	378.95	0.00000	101.31	8.474	0.26360
31	-11.16	-0.11419	378.95	0.00000	98.64	8.585	0.28209
32	-10.99	-0.11457	378.95	0.00000	96.11	8.674	0.30121
33	-11.33	-0.11425	378.95	0.00000	93.67	8.729	0.32096
34	-12.72	-0.11293	378.95	0.00000	91.36	8.746	0.34133
35	-13.40	-0.11028	378.95	0.00000	89.41	8.729	0.36233
36	-12.61	-0.10636	378.95	0.00000	87.68	8.661	0.38396
37	-12.13	-0.10247	378.95	0.00000	86.47	8.558	0.40621
38	-12.80	-0.09851	378.95	0.00000	85.54	8.433	0.42909
39	-12.86	-0.09372	378.95	0.00000	84.88	8.291	0.45260
40	-11.39	-0.08790	378.95	0.00000	84.56	8.168	0.47674

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.15	0.00000	3.18	0.00008	209.8	203.5	0.00004	-0.00004
3	-0.55	0.00000	12.47	0.00031	219.0	194.1	0.00015	-0.00015
4	-1.53	-0.00001	26.17	0.00069	232.4	180.0	0.00034	-0.00035
5	-2.42	-0.00003	38.43	0.00123	244.6	167.7	0.00061	-0.00062
6	-2.58	-0.00009	49.48	0.00192	256.1	157.1	0.00094	-0.00098
7	-2.19	-0.00018	60.22	0.00276	267.9	147.4	0.00134	-0.00143
8	-1.75	-0.00029	70.70	0.00376	279.6	138.2	0.00182	-0.00196
9	-1.09	-0.00045	80.93	0.00491	291.6	129.8	0.00236	-0.00259
10	-0.77	-0.00066	91.16	0.00621	303.7	121.4	0.00298	-0.00331
11	-0.77	-0.00090	100.87	0.00766	315.5	113.8	0.00366	-0.00411
12	-0.45	-0.00118	110.47	0.00927	327.6	106.7	0.00442	-0.00501
13	-0.11	-0.00151	119.82	0.01102	339.9	100.2	0.00525	-0.00600
14	0.07	-0.00186	128.73	0.01293	351.7	94.3	0.00615	-0.00708
15	-0.03	-0.00226	137.34	0.01498	363.5	88.8	0.00712	-0.00824
16	-0.33	-0.00269	145.67	0.01719	375.1	83.8	0.00816	-0.00950
17	-0.62	-0.00316	153.37	0.01954	386.2	79.5	0.00927	-0.01085
18	-0.73	-0.00367	160.61	0.02205	397.0	75.8	0.01044	-0.01228
19	-0.76	-0.00418	167.45	0.02470	407.5	72.6	0.01170	-0.01378
20	-1.17	-0.00469	174.16	0.02750	417.6	69.3	0.01302	-0.01537
21	-1.48	-0.00525	180.09	0.03044	427.1	66.9	0.01441	-0.01704
22	-1.88	-0.00579	184.85	0.03354	435.3	65.6	0.01587	-0.01877
23	-2.39	-0.00635	192.05	0.03677	445.8	61.7	0.01741	-0.02058
24	-3.37	-0.00693	197.73	0.04016	454.7	59.2	0.01901	-0.02247
25	-4.10	-0.00751	202.18	0.04369	462.3	57.9	0.02068	-0.02444
26	-4.86	-0.00804	199.99	0.04737	463.1	63.1	0.02243	-0.02645
27	-6.04	-0.00851	200.93	0.05120	466.8	64.9	0.02425	-0.02851
28	-7.10	-0.00889	202.58	0.05518	471.0	65.8	0.02616	-0.03061
29	-7.63	-0.00914	203.62	0.05932	474.7	67.4	0.02816	-0.03273
30	-8.12	-0.00930	205.97	0.06362	479.6	67.6	0.03024	-0.03489
31	-8.00	-0.00943	208.71	0.06807	485.1	67.6	0.03240	-0.03712
32	-7.88	-0.00946	210.88	0.07268	489.8	68.0	0.03466	-0.03939
33	-8.13	-0.00944	212.21	0.07744	493.5	69.0	0.03700	-0.04172
34	-9.13	-0.00933	212.58	0.08237	495.7	70.4	0.03944	-0.04411
35	-9.61	-0.00911	212.09	0.08747	496.9	72.6	0.04199	-0.04654
36	-9.04	-0.00879	210.36	0.09274	497.2	76.3	0.04464	-0.04903
37	-8.69	-0.00847	207.73	0.09816	495.9	80.4	0.04737	-0.05161
38	-9.17	-0.00814	204.62	0.10374	493.5	84.2	0.05019	-0.05426
39	-9.21	-0.00775	201.05	0.10949	490.6	88.4	0.05311	-0.05699
40	-8.16	-0.00727	197.92	0.11541	488.3	92.4	0.05614	-0.05978

Test Name: 70\_06/14/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 60

Length: 12.211 (cm)  
Volume: 171.483 (cm<sup>3</sup>)  
Inner\_radius: 2.544 (cm)

Area: 14.029 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.308 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-4.91	-0.00017	378.95	0.00000	171.95	0.139	0.00031
3	-19.46	-0.00085	378.95	0.00000	171.05	0.555	0.00120
4	-39.83	-0.00239	378.95	0.00000	169.55	1.091	0.00288
5	-56.65	-0.00525	378.95	0.00000	167.50	1.532	0.00519
6	-69.26	-0.00994	378.95	0.00000	164.65	1.878	0.00818
7	-81.14	-0.01624	378.95	0.00000	161.14	2.194	0.01197
8	-92.48	-0.02408	378.95	0.00000	157.06	2.491	0.01631
9	-104.08	-0.03350	378.95	0.00000	152.52	2.777	0.02142
10	-115.66	-0.04448	378.95	0.00000	146.74	3.069	0.02697
11	-126.86	-0.05757	378.95	0.00000	141.51	3.335	0.03364
12	-137.24	-0.07213	378.95	0.00000	136.18	3.611	0.04076
13	-146.68	-0.08772	378.95	0.00000	130.71	3.875	0.04834
14	-156.06	-0.10477	378.95	0.00000	125.15	4.113	0.05637
15	-165.40	-0.12330	378.95	0.00000	119.56	4.341	0.06478
16	-174.72	-0.14248	378.95	0.00000	114.03	4.569	0.07460
17	-183.57	-0.16265	378.95	0.00000	108.57	4.781	0.08540
18	-192.23	-0.18374	378.95	0.00000	103.29	4.980	0.09669
19	-200.43	-0.20579	378.95	0.00000	98.18	5.181	0.10849
20	-208.09	-0.22798	378.95	0.00000	93.28	5.384	0.12086
21	-215.50	-0.25100	378.95	0.00000	88.49	5.575	0.13383
22	-222.74	-0.27548	378.95	0.00000	83.74	5.756	0.14841
23	-229.86	-0.30031	378.95	0.00000	79.06	5.935	0.16383
24	-236.50	-0.32510	378.95	0.00000	74.39	6.101	0.17972
25	-243.30	-0.35069	378.95	0.00000	69.79	6.255	0.19601
26	-249.45	-0.37609	378.95	0.00000	65.31	6.396	0.21269
27	-254.65	-0.40121	378.95	0.00000	60.89	6.530	0.23018
28	-259.19	-0.42508	378.95	0.00000	56.80	6.646	0.24883
29	-262.73	-0.44791	378.95	0.00000	53.14	6.753	0.26828
30	-265.53	-0.46797	378.95	0.00000	49.73	6.853	0.28866
31	-266.91	-0.48770	378.95	0.00000	46.42	6.918	0.30920
32	-266.92	-0.50189	378.95	0.00000	43.65	6.942	0.33010
33	-267.02	-0.51376	378.95	0.00000	41.54	6.999	0.35234
34	-265.24	-0.52425	378.95	0.00000	39.66	7.070	0.37561
35	-264.32	-0.53409	378.95	0.00000	38.01	7.123	0.39900
36	-265.01	-0.54459	378.95	0.00000	36.57	7.184	0.42178
37	-266.00	-0.55553	378.95	0.00000	35.23	7.234	0.44677
38	-263.96	-0.56650	378.95	0.00000	34.02	7.220	0.47361
39	-262.48	-0.57564	378.95	0.00000	33.07	7.208	0.50064
40	-266.11	-0.58541	378.95	0.00000	32.13	7.273	0.52780

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-3.50	-0.00001	3.34	0.00007	209.0	201.5	0.00003	-0.00004
3	-13.85	-0.00007	13.35	0.00029	216.0	185.9	0.00014	-0.00017
4	-28.36	-0.00020	26.27	0.00069	225.1	165.4	0.00033	-0.00043
5	-40.35	-0.00043	36.88	0.00125	233.3	149.2	0.00060	-0.00081
6	-49.35	-0.00081	45.25	0.00197	241.2	138.1	0.00095	-0.00136
7	-57.84	-0.00133	52.90	0.00288	249.2	128.6	0.00142	-0.00208
8	-65.97	-0.00197	60.13	0.00392	257.5	120.3	0.00196	-0.00295
9	-74.29	-0.00274	67.09	0.00514	266.0	112.6	0.00261	-0.00398
10	-82.63	-0.00364	74.25	0.00646	275.9	105.9	0.00332	-0.00514
11	-90.73	-0.00470	80.82	0.00805	284.8	99.4	0.00418	-0.00653
12	-98.28	-0.00589	87.66	0.00974	294.1	93.1	0.00510	-0.00805
13	-105.17	-0.00716	94.25	0.01152	303.6	87.7	0.00609	-0.00966
14	-112.05	-0.00854	100.26	0.01341	312.6	82.9	0.00714	-0.01141
15	-118.93	-0.01005	106.04	0.01538	321.5	78.3	0.00825	-0.01328
16	-125.83	-0.01160	111.88	0.01767	330.4	73.6	0.00950	-0.01530
17	-132.42	-0.01323	117.36	0.02017	338.9	69.4	0.01084	-0.01746
18	-138.90	-0.01493	122.55	0.02278	347.1	65.3	0.01224	-0.01971
19	-145.09	-0.01671	127.85	0.02550	355.2	61.2	0.01370	-0.02206
20	-150.90	-0.01850	133.20	0.02833	363.3	57.1	0.01520	-0.02445
21	-156.56	-0.02035	138.32	0.03128	371.1	53.2	0.01676	-0.02694
22	-162.14	-0.02231	143.22	0.03459	378.7	49.6	0.01849	-0.02964
23	-167.66	-0.02430	148.12	0.03807	386.3	45.9	0.02028	-0.03242
24	-172.84	-0.02627	152.73	0.04163	393.6	42.7	0.02210	-0.03523
25	-178.17	-0.02831	157.06	0.04527	400.6	39.5	0.02396	-0.03812
26	-183.05	-0.03033	161.09	0.04897	407.4	36.8	0.02584	-0.04101
27	-187.24	-0.03233	164.94	0.05284	414.1	34.8	0.02778	-0.04394
28	-190.93	-0.03422	168.37	0.05696	420.2	33.1	0.02978	-0.04689
29	-193.89	-0.03602	171.54	0.06125	425.9	31.8	0.03183	-0.04985
30	-196.27	-0.03761	174.48	0.06574	431.3	30.9	0.03391	-0.05272
31	-197.59	-0.03916	176.55	0.07026	436.1	31.4	0.03600	-0.05558
32	-197.82	-0.04028	177.46	0.07488	439.5	33.2	0.03804	-0.05818
33	-198.08	-0.04121	179.17	0.07982	443.1	33.6	0.04017	-0.06078
34	-196.92	-0.04204	181.22	0.08498	447.1	34.6	0.04240	-0.06342
35	-196.39	-0.04281	182.77	0.09017	450.2	35.3	0.04465	-0.06605
36	-197.06	-0.04363	184.56	0.09520	453.1	34.6	0.04685	-0.06867
37	-197.97	-0.04449	186.09	0.10071	455.5	33.9	0.04928	-0.07153
38	-196.62	-0.04535	185.97	0.10662	457.0	36.3	0.05190	-0.07457
39	-195.66	-0.04606	185.86	0.11259	458.1	38.0	0.05453	-0.07757
40	-198.52	-0.04683	187.75	0.11856	459.9	35.2	0.05720	-0.08061

Test Name: 69\_06/07/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 90

Length: 12.131 (cm)  
Volume: 157.045 (cm<sup>3</sup>)  
Inner\_radius: 2.546 (cm)

Area: 12.932 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.310 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-20.97	-0.00110	378.95	0.00000	170.06	0.000	0.00000
3	-43.08	-0.00315	378.95	0.00000	167.02	0.000	0.00000
4	-65.43	-0.00641	378.95	0.00000	163.36	0.000	0.00000
5	-86.68	-0.01370	378.95	0.00000	158.90	0.000	0.00000
6	-107.77	-0.02542	378.95	0.00000	153.68	0.000	0.00000
7	-128.44	-0.04015	378.95	0.00000	148.09	0.000	0.00000
8	-149.08	-0.05767	378.95	0.00000	142.26	0.000	0.00000
9	-170.01	-0.08011	378.95	0.00000	136.29	0.000	0.00000
10	-190.62	-0.10584	378.95	0.00000	130.22	0.000	0.00000
11	-210.93	-0.13591	378.95	0.00000	124.05	0.000	0.00000
12	-229.93	-0.16632	378.95	0.00000	118.12	0.000	0.00000
13	-250.03	-0.19966	378.95	0.00000	112.43	0.000	0.00000
14	-270.47	-0.23641	378.95	0.00000	106.71	0.000	0.00000
15	-288.90	-0.27609	378.95	0.00000	101.02	0.000	0.00000
16	-306.90	-0.31884	378.95	0.00000	95.31	0.000	0.00000
17	-323.97	-0.36170	378.95	0.00000	89.74	0.000	0.00000
18	-340.20	-0.40552	378.95	0.00000	84.38	0.000	0.00000
19	-355.68	-0.45020	378.95	0.00000	79.17	0.000	0.00000
20	-370.45	-0.49312	378.95	0.00000	74.25	0.000	0.00000
21	-384.74	-0.53887	378.95	0.00000	69.37	0.000	0.00000
22	-398.12	-0.58508	378.95	0.00000	64.74	0.000	0.00000
23	-410.94	-0.63096	378.95	0.00000	60.32	0.000	0.00000
24	-423.24	-0.67444	378.95	0.00000	56.14	0.000	0.00000
25	-435.36	-0.72229	378.95	0.00000	52.29	0.000	0.00000
26	-446.54	-0.76721	378.95	0.00000	48.60	0.000	0.00000
27	-456.38	-0.81197	378.95	0.00000	45.28	0.000	0.00000
28	-465.28	-0.85658	378.95	0.00000	42.22	0.000	0.00000
29	-473.36	-0.89635	378.95	0.00000	39.43	0.000	0.00000
30	-480.95	-0.93359	378.95	0.00000	36.92	0.000	0.00000
31	-487.93	-0.96916	378.95	0.00000	34.68	0.000	0.00000
32	-493.83	-1.00330	378.95	0.00000	32.70	0.000	0.00000
33	-498.52	-1.03774	378.95	0.00000	30.96	0.000	0.00000
34	-502.26	-1.07032	378.95	0.00000	29.50	0.000	0.00000
35	-505.10	-1.09983	378.95	0.00000	28.31	0.000	0.00000
36	-506.03	-1.12637	378.95	0.00000	27.32	0.000	0.00000
37	-504.34	-1.14891	378.95	0.00000	26.52	0.000	0.00000
38	-502.98	-1.16706	378.95	0.00000	26.00	0.000	0.00000
39	-502.17	-1.18898	378.95	0.00000	25.69	0.000	0.00000
40	-501.90	-1.27021	378.95	0.00000	25.67	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-16.19	-0.00009	0.00	0.00000	208.9	192.7	0.00005	-0.00009
3	-33.28	-0.00026	0.00	0.00000	211.9	178.6	0.00013	-0.00026
4	-50.55	-0.00053	0.00	0.00000	215.6	165.0	0.00026	-0.00053
5	-67.01	-0.00113	0.00	0.00000	220.1	153.0	0.00056	-0.00113
6	-83.40	-0.00209	0.00	0.00000	225.3	141.9	0.00105	-0.00209
7	-99.51	-0.00330	0.00	0.00000	230.9	131.3	0.00165	-0.00330
8	-115.67	-0.00474	0.00	0.00000	236.7	121.0	0.00237	-0.00474
9	-132.15	-0.00658	0.00	0.00000	242.7	110.5	0.00329	-0.00658
10	-148.49	-0.00869	0.00	0.00000	248.7	100.2	0.00434	-0.00869
11	-164.71	-0.01114	0.00	0.00000	254.9	90.2	0.00557	-0.01114
12	-180.00	-0.01362	0.00	0.00000	260.8	80.8	0.00681	-0.01362
13	-196.26	-0.01632	0.00	0.00000	266.5	70.3	0.00816	-0.01632
14	-212.94	-0.01930	0.00	0.00000	272.2	59.3	0.00965	-0.01930
15	-228.17	-0.02250	0.00	0.00000	277.9	49.8	0.01125	-0.02250
16	-243.23	-0.02594	0.00	0.00000	283.6	40.4	0.01297	-0.02594
17	-257.63	-0.02938	0.00	0.00000	289.2	31.6	0.01469	-0.02938
18	-271.49	-0.03288	0.00	0.00000	294.6	23.1	0.01644	-0.03288
19	-284.86	-0.03644	0.00	0.00000	299.8	14.9	0.01822	-0.03644
20	-297.70	-0.03985	0.00	0.00000	304.7	7.0	0.01992	-0.03985
21	-310.31	-0.04346	0.00	0.00000	309.6	-0.7	0.02173	-0.04346
22	-322.26	-0.04710	0.00	0.00000	314.2	-8.1	0.02355	-0.04710
23	-333.84	-0.05070	0.00	0.00000	318.6	-15.2	0.02535	-0.05070
24	-345.01	-0.05411	0.00	0.00000	322.8	-22.2	0.02705	-0.05411
25	-356.22	-0.05784	0.00	0.00000	326.7	-29.6	0.02892	-0.05784
26	-366.63	-0.06132	0.00	0.00000	330.4	-36.3	0.03066	-0.06132
27	-376.02	-0.06479	0.00	0.00000	333.7	-42.3	0.03239	-0.06479
28	-384.67	-0.06823	0.00	0.00000	336.7	-47.9	0.03411	-0.06823
29	-392.55	-0.07129	0.00	0.00000	339.5	-53.0	0.03564	-0.07129
30	-399.99	-0.07414	0.00	0.00000	342.0	-58.0	0.03707	-0.07414
31	-406.89	-0.07686	0.00	0.00000	344.3	-62.6	0.03843	-0.07686
32	-412.89	-0.07946	0.00	0.00000	346.3	-66.6	0.03973	-0.07946
33	-417.90	-0.08208	0.00	0.00000	348.0	-69.9	0.04104	-0.08208
34	-422.08	-0.08455	0.00	0.00000	349.5	-72.6	0.04228	-0.08455
35	-425.41	-0.08679	0.00	0.00000	350.6	-74.8	0.04339	-0.08679
36	-427.05	-0.08879	0.00	0.00000	351.6	-75.4	0.04439	-0.08879
37	-426.35	-0.09049	0.00	0.00000	352.4	-73.9	0.04524	-0.09049
38	-425.78	-0.09185	0.00	0.00000	353.0	-72.8	0.04593	-0.09185
39	-425.80	-0.09350	0.00	0.00000	353.3	-72.5	0.04675	-0.09350
40	-428.16	-0.09958	0.00	0.00000	353.3	-74.9	0.04979	-0.09958

Test Name: 3t\_01/23/90

Material: EPK  
Shape: Dogbone  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.252 (cm)  
Volume: 173.337 (cm<sup>3</sup>)  
Inner\_radius: 2.554 (cm)

Area: 14.133 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.320 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	0.15	0.00000	378.95	0.00000	171.99	0.113	0.00019
3	0.71	0.00000	378.95	0.00000	171.30	0.528	0.00085
4	2.42	0.00000	378.95	0.00000	170.12	1.151	0.00121
5	6.03	0.00000	378.95	0.00000	168.68	1.751	0.00272
6	12.00	0.00000	378.95	0.00000	166.97	2.364	0.00484
7	19.65	0.00000	378.95	0.00000	165.14	2.916	0.00737
8	28.01	0.00000	378.95	0.00000	163.16	3.443	0.01027
9	37.21	0.00000	378.95	0.00000	161.10	3.957	0.01371
10	46.98	0.00000	378.95	0.00000	158.95	4.419	0.01756
11	56.44	0.00000	378.95	0.00000	156.69	4.885	0.02229
12	65.93	0.00000	378.95	0.00000	154.33	5.338	0.02769
13	75.77	0.00000	378.95	0.00000	151.86	5.790	0.03376
14	85.59	0.00000	378.95	0.00000	149.25	6.225	0.04029
15	95.57	0.00000	378.95	0.00000	146.59	6.672	0.04730
16	105.36	0.00000	378.95	0.00000	143.72	7.089	0.05474
17	115.30	0.00000	378.95	0.00000	140.77	7.498	0.06250
18	125.05	0.00000	378.95	0.00000	137.71	7.911	0.07111
19	134.59	0.00000	378.95	0.00000	134.58	8.310	0.07970
20	144.17	0.00000	378.95	0.00000	131.33	8.694	0.08893
21	153.22	0.00000	378.95	0.00000	128.03	9.050	0.09872
22	162.27	0.00000	378.95	0.00000	124.63	9.430	0.10946
23	170.56	0.00000	378.95	0.00000	121.19	9.767	0.12052
24	178.73	0.00000	378.95	0.00000	117.62	10.098	0.13181
25	186.05	0.00000	378.95	0.00000	114.16	10.391	0.14383
26	193.14	0.00000	378.95	0.00000	110.66	10.694	0.15683
27	199.29	0.00000	378.95	0.00000	107.22	10.958	0.17001
28	204.89	0.00000	378.95	0.00000	103.80	11.237	0.18355
29	210.35	0.00000	378.95	0.00000	100.30	11.495	0.19733
30	215.46	0.00000	378.95	0.00000	96.86	11.748	0.21156
31	220.20	0.00000	378.95	0.00000	93.44	12.007	0.22652
32	223.79	0.00000	378.95	0.00000	89.97	12.205	0.24277
33	223.34	0.00000	378.95	0.00000	86.54	12.380	0.25919
34	209.71	0.00000	378.95	0.00000	82.99	12.375	0.27595
35	180.62	0.00000	378.95	0.00000	79.35	12.153	0.29283
36	147.74	0.00000	378.95	0.00000	75.64	12.073	0.31050
37	120.83	0.00000	378.95	0.00000	71.92	11.989	0.32889
38	96.72	0.00000	378.95	0.00000	68.40	11.815	0.34423
39	73.55	0.00000	378.95	0.00000	65.14	11.664	0.35514
40	50.34	0.00000	378.95	0.00000	62.02	11.438	0.37618

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	0.10	0.00000	2.69	0.00005	209.7	204.3	0.00002	-0.00002
3	0.51	0.00000	12.57	0.00021	220.5	195.3	0.00010	-0.00010
4	1.71	0.00000	27.39	0.00029	237.1	182.3	0.00015	-0.00015
5	4.26	0.00000	41.68	0.00066	254.1	170.7	0.00033	-0.00033
6	8.48	0.00000	56.27	0.00117	272.7	159.8	0.00058	-0.00058
7	13.88	0.00000	69.41	0.00178	290.5	151.0	0.00089	-0.00089
8	19.79	0.00000	81.94	0.00248	308.2	143.1	0.00124	-0.00124
9	26.29	0.00000	94.17	0.00331	326.1	135.9	0.00165	-0.00165
10	33.20	0.00000	105.17	0.00423	343.1	130.1	0.00212	-0.00212
11	39.88	0.00000	116.26	0.00537	360.2	124.2	0.00269	-0.00269
12	46.59	0.00000	127.04	0.00668	377.1	118.8	0.00334	-0.00334
13	53.54	0.00000	137.79	0.00814	394.2	113.5	0.00407	-0.00407
14	60.48	0.00000	148.16	0.00971	411.1	108.7	0.00486	-0.00486
15	67.53	0.00000	158.78	0.01140	428.5	103.8	0.00570	-0.00570
16	74.45	0.00000	168.72	0.01320	445.2	99.7	0.00660	-0.00660
17	81.47	0.00000	178.44	0.01507	461.9	95.9	0.00753	-0.00753
18	88.36	0.00000	188.28	0.01714	478.8	92.0	0.00857	-0.00857
19	95.10	0.00000	197.78	0.01921	495.3	88.5	0.00961	-0.00961
20	101.87	0.00000	206.91	0.02144	511.6	85.5	0.01072	-0.01072
21	108.27	0.00000	215.39	0.02380	527.1	83.0	0.01190	-0.01190
22	114.66	0.00000	224.42	0.02639	543.3	80.0	0.01319	-0.01319
23	120.52	0.00000	232.44	0.02905	558.1	77.9	0.01453	-0.01453
24	126.29	0.00000	240.32	0.03177	572.9	76.0	0.01589	-0.01589
25	131.47	0.00000	247.29	0.03467	586.4	74.6	0.01734	-0.01734
26	136.47	0.00000	254.51	0.03780	600.0	73.0	0.01890	-0.01890
27	140.82	0.00000	260.79	0.04098	612.3	72.0	0.02049	-0.02049
28	144.78	0.00000	267.44	0.04425	624.6	70.5	0.02212	-0.02212
29	148.63	0.00000	273.57	0.04757	636.5	69.5	0.02378	-0.02378
30	152.24	0.00000	279.59	0.05100	648.0	68.4	0.02550	-0.02550
31	155.60	0.00000	285.75	0.05460	659.5	67.2	0.02730	-0.02730
32	158.13	0.00000	290.47	0.05852	669.1	67.0	0.02926	-0.02926
33	157.81	0.00000	294.63	0.06248	676.3	66.3	0.03124	-0.03124
34	148.18	0.00000	294.51	0.06652	673.7	66.4	0.03326	-0.03326
35	127.63	0.00000	289.23	0.07059	659.6	67.2	0.03529	-0.03529
36	104.40	0.00000	287.32	0.07485	647.5	63.5	0.03742	-0.03742
37	85.38	0.00000	285.34	0.07928	638.2	61.2	0.03964	-0.03964
38	68.34	0.00000	281.18	0.08298	628.0	61.5	0.04149	-0.04149
39	51.97	0.00000	277.59	0.08561	618.6	61.0	0.04280	-0.04280
40	35.57	0.00000	272.21	0.09068	607.5	61.9	0.04534	-0.04534



Test Name: 16\_12/13/90

Material: EPK  
Shape: Dogbone  
a/l: 0.1  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Length: 12.216 (cm)  
Volume: 172.202 (cm<sup>3</sup>)  
Inner\_radius: 2.549 (cm)

Area: 14.082 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.314 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	0.03	0.00000	378.95	0.00000	172.25	0.135	0.00017
3	-0.12	0.00000	378.95	0.00000	172.21	0.616	0.00085
4	-0.22	0.00000	378.95	0.00000	172.18	1.084	0.00212
5	-0.46	0.00000	378.95	0.00000	172.11	1.672	0.00400
6	1.46	0.00000	378.95	0.00000	171.98	2.237	0.00634
7	5.73	0.00000	378.95	0.00000	171.85	2.758	0.00929
8	12.21	0.00000	378.95	0.00000	171.61	3.245	0.01259
9	19.22	0.00000	378.95	0.00000	171.19	3.703	0.01659
10	27.17	0.00000	378.95	0.00000	170.63	4.140	0.02131
11	35.13	0.00000	378.95	0.00000	169.81	4.559	0.02643
12	42.91	0.00000	378.95	0.00000	168.77	4.967	0.03210
13	50.67	0.00000	378.95	0.00000	167.43	5.369	0.03845
14	58.66	0.00000	378.95	0.00000	165.77	5.764	0.04513
15	66.92	0.00000	378.95	0.00000	163.87	6.150	0.05245
16	75.07	0.00000	378.95	0.00000	161.62	6.524	0.06021
17	83.19	0.00000	378.95	0.00000	159.09	6.874	0.06855
18	91.11	0.00000	378.95	0.00000	156.42	7.273	0.07727
19	99.19	0.00000	378.95	0.00000	153.53	7.761	0.08584
20	107.15	0.00000	378.95	0.00000	150.32	8.253	0.09509
21	113.99	0.00000	378.95	0.00000	146.93	8.649	0.10531
22	120.31	0.00000	378.95	0.00000	143.42	8.976	0.11634
23	125.99	0.00000	378.95	0.00000	139.79	9.287	0.12793
24	131.94	0.00000	378.95	0.00000	135.99	9.574	0.14006
25	138.14	0.00000	378.95	0.00000	132.03	9.831	0.15274
26	142.48	0.00000	378.95	0.00000	128.04	10.058	0.16595
27	143.71	0.00000	378.95	0.00000	124.40	10.263	0.17970
28	143.83	0.00000	378.95	0.00000	120.54	10.443	0.19399
29	141.68	0.00000	378.95	0.00000	116.12	10.584	0.20882
30	137.18	0.00000	378.95	0.00000	111.65	10.676	0.22419
31	130.67	0.00000	378.95	0.00000	107.61	10.737	0.24010
32	122.35	0.00000	378.95	0.00000	103.06	10.776	0.25655
33	109.98	0.00000	378.95	0.00000	98.53	10.763	0.27353
34	93.64	0.00000	378.95	0.00000	94.67	10.682	0.29106
35	75.49	0.00000	378.95	0.00000	90.72	10.587	0.30912
36	60.18	0.00000	378.95	0.00000	87.40	10.532	0.32773
37	49.56	0.00000	378.95	0.00000	83.73	10.498	0.34687
38	41.39	0.00000	378.95	0.00000	80.15	10.519	0.36655
39	32.37	0.00000	378.95	0.00000	76.95	10.700	0.38678
40	20.73	0.00000	378.95	0.00000	74.15	11.012	0.40753

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	0.02	0.00000	3.23	0.00004	209.9	203.5	0.00002	-0.00002
3	-0.08	0.00000	14.75	0.00020	221.4	191.9	0.00010	-0.00010
4	-0.16	0.00000	25.94	0.00051	232.6	180.8	0.00026	-0.00026
5	-0.33	0.00000	40.02	0.00096	246.7	166.7	0.00048	-0.00048
6	1.03	0.00000	53.53	0.00153	261.0	154.0	0.00076	-0.00076
7	4.06	0.00000	66.00	0.00224	275.2	143.1	0.00112	-0.00112
8	8.66	0.00000	77.64	0.00304	289.4	133.9	0.00152	-0.00152
9	13.63	0.00000	88.61	0.00400	303.4	125.7	0.00200	-0.00200
10	19.27	0.00000	99.06	0.00514	317.5	118.4	0.00257	-0.00257
11	24.92	0.00000	109.09	0.00638	331.4	111.8	0.00319	-0.00319
12	30.43	0.00000	118.85	0.00775	345.2	105.6	0.00387	-0.00387
13	35.93	0.00000	128.47	0.00928	359.2	99.8	0.00464	-0.00464
14	41.60	0.00000	137.92	0.01089	373.5	94.5	0.00545	-0.00545
15	47.46	0.00000	147.16	0.01266	387.9	89.8	0.00633	-0.00633
16	53.24	0.00000	156.12	0.01453	402.3	85.6	0.00727	-0.00727
17	59.00	0.00000	164.48	0.01654	416.5	82.3	0.00827	-0.00827
18	64.62	0.00000	174.03	0.01865	431.8	77.8	0.00932	-0.00932
19	70.34	0.00000	185.72	0.02072	449.6	71.6	0.01036	-0.01036
20	75.99	0.00000	197.48	0.02295	467.7	65.5	0.01147	-0.01147
21	80.84	0.00000	206.97	0.02542	483.3	61.6	0.01271	-0.01271
22	85.33	0.00000	214.77	0.02808	497.2	59.2	0.01404	-0.01404
23	89.35	0.00000	222.23	0.03087	510.5	57.2	0.01544	-0.01544
24	93.57	0.00000	229.09	0.03380	523.6	55.9	0.01690	-0.01690
25	97.97	0.00000	235.23	0.03686	536.2	55.6	0.01843	-0.01843
26	101.05	0.00000	240.68	0.04005	547.4	55.5	0.02002	-0.02002
27	101.92	0.00000	245.59	0.04337	556.3	54.7	0.02168	-0.02168
28	102.00	0.00000	249.89	0.04682	564.5	54.4	0.02341	-0.02341
29	100.48	0.00000	253.25	0.05040	571.2	54.9	0.02520	-0.02520
30	97.29	0.00000	255.45	0.05410	576.0	55.9	0.02705	-0.02705
31	92.67	0.00000	256.93	0.05794	578.7	56.6	0.02897	-0.02897
32	86.77	0.00000	257.86	0.06191	580.8	57.8	0.03096	-0.03096
33	78.00	0.00000	257.54	0.06601	579.9	58.9	0.03301	-0.03301
34	66.41	0.00000	255.61	0.07024	575.2	59.7	0.03512	-0.03512
35	53.54	0.00000	253.34	0.07460	569.7	60.3	0.03730	-0.03730
36	42.68	0.00000	252.01	0.07909	565.8	60.0	0.03955	-0.03955
37	35.14	0.00000	251.20	0.08371	564.6	61.0	0.04186	-0.04186
38	29.35	0.00000	251.70	0.08846	565.6	61.3	0.04423	-0.04423
39	22.95	0.00000	256.02	0.09334	569.8	57.2	0.04667	-0.04667
40	14.70	0.00000	263.50	0.09835	575.7	48.6	0.04918	-0.04918

Test Name: 18\_01/15/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Length: 12.168 (cm)  
Volume: 172.056 (cm<sup>3</sup>)  
Inner\_radius: 2.553 (cm)

Area: 14.126 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.319 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.04	0.00000	378.95	0.00000	172.25	0.104	0.00004
3	-0.15	0.00000	378.95	0.00000	172.20	0.414	0.00014
4	-0.48	0.00000	378.95	0.00000	172.12	0.903	0.00084
5	0.05	0.00000	378.95	0.00000	171.99	1.453	0.00213
6	2.89	0.00000	378.95	0.00000	171.73	1.939	0.00372
7	7.41	0.00000	378.95	0.00000	171.46	2.366	0.00586
8	12.67	0.00000	378.95	0.00000	171.07	2.758	0.00837
9	18.57	0.00000	378.95	0.00000	170.58	3.123	0.01121
10	25.11	0.00000	378.95	0.00000	170.01	3.481	0.01434
11	31.71	0.00000	378.95	0.00000	169.36	3.815	0.01776
12	38.43	0.00000	378.95	0.00000	168.54	4.143	0.02164
13	45.26	0.00000	378.95	0.00000	167.58	4.448	0.02579
14	52.60	0.00000	378.95	0.00000	166.51	4.768	0.02993
15	59.82	0.00000	378.95	0.00000	165.29	5.078	0.03436
16	66.60	0.00000	378.95	0.00000	163.93	5.374	0.03931
17	73.32	0.00000	378.95	0.00000	162.45	5.676	0.04470
18	79.43	0.00000	378.95	0.00000	160.78	5.979	0.05064
19	85.57	0.00000	378.95	0.00000	158.95	6.260	0.05719
20	91.50	0.00000	378.95	0.00000	157.07	6.627	0.06434
21	97.24	0.00000	378.95	0.00000	155.07	7.012	0.07209
22	102.42	0.00000	378.95	0.00000	152.94	7.292	0.08039
23	106.84	0.00000	378.95	0.00000	150.72	7.551	0.08884
24	110.24	0.00000	378.95	0.00000	148.37	7.794	0.09812
25	112.83	0.00000	378.95	0.00000	145.85	8.010	0.10732
26	114.53	0.00000	378.95	0.00000	143.20	8.201	0.11655
27	115.50	0.00000	378.95	0.00000	140.47	8.386	0.12590
28	115.49	0.00000	378.95	0.00000	137.71	8.549	0.13623
29	114.27	0.00000	378.95	0.00000	134.90	8.688	0.14664
30	111.08	0.00000	378.95	0.00000	131.97	8.800	0.15701
31	106.27	0.00000	378.95	0.00000	128.98	8.927	0.16759
32	100.47	0.00000	378.95	0.00000	125.92	9.050	0.17936
33	93.30	0.00000	378.95	0.00000	122.77	9.148	0.19228
34	84.73	0.00000	378.95	0.00000	119.65	9.171	0.20569
35	74.37	0.00000	378.95	0.00000	116.58	9.129	0.21882
36	63.19	0.00000	378.95	0.00000	113.53	9.083	0.23206
37	52.16	0.00000	378.95	0.00000	110.47	9.072	0.24544
38	42.57	0.00000	378.95	0.00000	107.52	9.092	0.25935
39	34.68	0.00000	378.95	0.00000	104.68	9.069	0.27365
40	27.45	0.00000	378.95	0.00000	102.18	9.033	0.28861

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.03	0.00000	2.48	0.00001	209.2	204.2	0.00001	-0.00001
3	-0.11	0.00000	9.87	0.00003	216.6	196.8	0.00002	-0.00002
4	-0.34	0.00000	21.50	0.00020	228.2	185.2	0.00010	-0.00010
5	0.03	0.00000	34.62	0.00052	241.6	172.4	0.00026	-0.00026
6	2.04	0.00000	46.19	0.00090	254.4	162.0	0.00045	-0.00045
7	5.24	0.00000	56.36	0.00142	266.5	153.7	0.00071	-0.00071
8	8.96	0.00000	65.68	0.00203	278.2	146.5	0.00102	-0.00102
9	13.13	0.00000	74.39	0.00272	289.6	140.1	0.00136	-0.00136
10	17.76	0.00000	82.91	0.00348	301.2	134.4	0.00174	-0.00174
11	22.42	0.00000	90.86	0.00431	312.3	129.3	0.00215	-0.00215
12	27.17	0.00000	98.68	0.00525	323.6	124.4	0.00263	-0.00263
13	32.00	0.00000	105.93	0.00626	334.5	120.2	0.00313	-0.00313
14	37.19	0.00000	113.56	0.00726	346.1	116.0	0.00363	-0.00363
15	42.29	0.00000	120.93	0.00834	357.6	112.0	0.00417	-0.00417
16	47.09	0.00000	128.00	0.00954	368.7	108.4	0.00477	-0.00477
17	51.83	0.00000	135.19	0.01085	380.1	104.8	0.00542	-0.00542
18	56.16	0.00000	142.40	0.01229	391.4	101.1	0.00614	-0.00614
19	60.50	0.00000	149.09	0.01388	402.4	98.1	0.00694	-0.00694
20	64.69	0.00000	157.83	0.01561	415.3	93.1	0.00781	-0.00781
21	68.75	0.00000	167.01	0.01749	428.8	87.7	0.00875	-0.00875
22	72.41	0.00000	173.68	0.01951	439.6	84.8	0.00975	-0.00975
23	75.53	0.00000	179.83	0.02156	449.8	82.2	0.01078	-0.01078
24	77.94	0.00000	185.62	0.02381	459.2	79.9	0.01191	-0.01191
25	79.77	0.00000	190.77	0.02604	467.9	78.1	0.01302	-0.01302
26	80.97	0.00000	195.32	0.02828	475.7	76.8	0.01414	-0.01414
27	81.65	0.00000	199.71	0.03055	483.1	75.5	0.01528	-0.01528
28	81.65	0.00000	203.60	0.03306	489.7	74.4	0.01653	-0.01653
29	80.79	0.00000	206.92	0.03559	495.3	73.6	0.01779	-0.01779
30	78.53	0.00000	209.59	0.03810	499.5	73.0	0.01905	-0.01905
31	75.13	0.00000	212.60	0.04067	503.4	71.6	0.02034	-0.02034
32	71.03	0.00000	215.54	0.04353	507.0	70.1	0.02176	-0.02176
33	65.96	0.00000	217.88	0.04666	509.5	68.8	0.02333	-0.02333
34	59.91	0.00000	218.43	0.04991	509.7	68.8	0.02496	-0.02496
35	52.58	0.00000	217.41	0.05310	507.7	69.7	0.02655	-0.02655
36	44.68	0.00000	216.32	0.05632	505.2	70.3	0.02816	-0.02816
37	36.88	0.00000	216.07	0.05956	503.8	70.1	0.02978	-0.02978
38	30.09	0.00000	216.53	0.06294	503.5	69.4	0.03147	-0.03147
39	24.52	0.00000	216.00	0.06641	502.9	70.2	0.03320	-0.03320
40	19.41	0.00000	215.13	0.07004	501.8	71.1	0.03502	-0.03502

Test Name: 15\_11/28/90

Material: EPK  
Shape: Dogbone  
a/l: 0.3  
Angle: 0.0  
Consol.: Ko 0,  
OCR-4

Control: Deform  
Loading: Static  
Height: Fixed  
Beta: 45

Length: 12.456 (cm)  
Volume: 175.327 (cm<sup>3</sup>)  
Inner\_radius: 2.543 (cm)

Area: 14.061 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.311 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	0.25	0.00000	378.95	0.00000	172.24	0.110	0.00010
3	0.97	0.00000	378.95	0.00000	172.16	0.438	0.00069
4	2.17	0.00000	378.95	0.00000	172.02	0.930	0.00168
5	5.11	0.00000	378.95	0.00000	171.83	1.442	0.00297
6	10.34	0.00000	378.95	0.00000	171.63	1.915	0.00476
7	16.39	0.00000	378.95	0.00000	171.38	2.337	0.00691
8	23.67	0.00000	378.95	0.00000	171.03	2.735	0.00948
9	30.49	0.00000	378.95	0.00000	170.62	3.092	0.01231
10	37.18	0.00000	378.95	0.00000	170.10	3.425	0.01557
11	43.38	0.00000	378.95	0.00000	169.44	3.759	0.01919
12	49.73	0.00000	378.95	0.00000	168.69	4.089	0.02328
13	56.40	0.00000	378.95	0.00000	167.77	4.411	0.02772
14	62.43	0.00000	378.95	0.00000	166.70	4.726	0.03205
15	68.49	0.00000	378.95	0.00000	165.47	5.034	0.03628
16	74.89	0.00000	378.95	0.00000	164.08	5.336	0.04147
17	80.77	0.00000	378.95	0.00000	162.53	5.626	0.04767
18	86.36	0.00000	378.95	0.00000	160.88	5.901	0.05400
19	91.21	0.00000	378.95	0.00000	159.11	6.167	0.06080
20	95.96	0.00000	378.95	0.00000	157.32	6.429	0.06818
21	100.68	0.00000	378.95	0.00000	155.29	6.689	0.07595
22	105.15	0.00000	378.95	0.00000	153.07	6.940	0.08456
23	108.87	0.00000	378.95	0.00000	150.83	7.165	0.09362
24	111.53	0.00000	378.95	0.00000	148.32	7.350	0.10223
25	113.41	0.00000	378.95	0.00000	145.88	7.523	0.11078
26	114.15	0.00000	378.95	0.00000	143.62	7.688	0.11971
27	114.09	0.00000	378.95	0.00000	140.98	7.857	0.12911
28	114.04	0.00000	378.95	0.00000	138.27	8.020	0.13882
29	113.89	0.00000	378.95	0.00000	135.64	8.163	0.14957
30	113.35	0.00000	378.95	0.00000	133.00	8.285	0.16053
31	111.39	0.00000	378.95	0.00000	130.41	8.363	0.17237
32	107.28	0.00000	378.95	0.00000	127.76	8.398	0.18446
33	101.35	0.00000	378.95	0.00000	125.21	8.404	0.19692
34	94.27	0.00000	378.95	0.00000	122.64	8.395	0.20984
35	87.47	0.00000	378.95	0.00000	120.35	8.400	0.22273
36	81.53	0.00000	378.95	0.00000	117.99	8.405	0.23627
37	76.99	0.00000	378.95	0.00000	115.51	8.407	0.25021
38	73.19	0.00000	378.95	0.00000	113.26	8.393	0.26460
39	68.87	0.00000	378.95	0.00000	111.33	8.378	0.27950
40	64.17	0.00000	378.95	0.00000	109.28	8.359	0.29490

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	0.18	0.00000	2.65	0.00002	209.4	204.1	0.00001	-0.00001
3	0.69	0.00000	10.54	0.00016	217.7	196.6	0.00008	-0.00008
4	1.54	0.00000	22.35	0.00040	230.1	185.3	0.00020	-0.00020
5	3.63	0.00000	34.67	0.00070	243.6	174.2	0.00035	-0.00035
6	7.35	0.00000	46.06	0.00112	257.2	164.8	0.00056	-0.00056
7	11.64	0.00000	56.19	0.00163	269.9	156.9	0.00082	-0.00082
8	16.81	0.00000	65.78	0.00224	282.6	150.0	0.00112	-0.00112
9	21.65	0.00000	74.35	0.00290	294.3	144.0	0.00145	-0.00145
10	26.41	0.00000	82.37	0.00367	305.5	138.6	0.00184	-0.00184
11	30.81	0.00000	90.39	0.00453	316.6	133.2	0.00226	-0.00226
12	35.32	0.00000	98.33	0.00549	327.8	128.0	0.00275	-0.00275
13	40.06	0.00000	106.07	0.00654	339.2	123.3	0.00327	-0.00327
14	44.34	0.00000	113.65	0.00756	350.2	118.6	0.00378	-0.00378
15	48.64	0.00000	121.05	0.00856	361.3	114.3	0.00428	-0.00428
16	53.19	0.00000	128.30	0.00978	372.5	110.4	0.00489	-0.00489
17	57.36	0.00000	135.29	0.01124	383.4	106.8	0.00562	-0.00562
18	61.34	0.00000	141.90	0.01274	393.9	103.6	0.00637	-0.00637
19	64.78	0.00000	148.30	0.01434	404.0	100.4	0.00717	-0.00717
20	68.15	0.00000	154.60	0.01608	414.0	97.4	0.00804	-0.00804
21	71.51	0.00000	160.84	0.01791	424.2	94.7	0.00896	-0.00896
22	74.68	0.00000	166.88	0.01994	434.2	92.2	0.00997	-0.00997
23	77.32	0.00000	172.29	0.02208	443.4	90.2	0.01104	-0.01104
24	79.21	0.00000	176.73	0.02411	451.4	89.1	0.01206	-0.01206
25	80.54	0.00000	180.90	0.02613	458.7	88.0	0.01306	-0.01306
26	81.08	0.00000	184.88	0.02823	465.1	86.6	0.01412	-0.01412
27	81.03	0.00000	188.93	0.03045	471.7	85.3	0.01523	-0.01523
28	81.00	0.00000	192.86	0.03274	478.2	84.1	0.01637	-0.01637
29	80.89	0.00000	196.30	0.03528	484.2	83.3	0.01764	-0.01764
30	80.50	0.00000	199.23	0.03786	489.5	83.0	0.01893	-0.01893
31	79.11	0.00000	201.11	0.04065	493.1	83.1	0.02033	-0.02033
32	76.19	0.00000	201.93	0.04350	494.8	83.8	0.02175	-0.02175
33	71.98	0.00000	202.09	0.04644	495.0	84.5	0.02322	-0.02322
34	66.96	0.00000	201.86	0.04949	494.4	85.2	0.02475	-0.02475
35	62.12	0.00000	202.00	0.05253	494.0	85.3	0.02627	-0.02627
36	57.91	0.00000	202.12	0.05573	494.1	85.7	0.02786	-0.02786
37	54.68	0.00000	202.16	0.05901	494.8	86.8	0.02951	-0.02951
38	51.99	0.00000	201.82	0.06241	495.2	88.2	0.03120	-0.03120
39	48.91	0.00000	201.45	0.06592	495.0	89.1	0.03296	-0.03296
40	45.57	0.00000	201.01	0.06955	494.8	90.2	0.03478	-0.03478

Test Name: 13\_11/07/90

Material: EPK  
Shape: Dogbone  
a/l: 0.35  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Fixed  
Beta: 45

Length: 12.000 (cm)  
Volume: 169.686 (cm<sup>3</sup>)  
Inner\_radius: 2.553 (cm)

Area: 14.126 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.319 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.07	0.00000	378.95	0.00000	172.29	0.119	-0.00005
3	-0.27	0.00000	378.95	0.00000	172.39	0.471	0.00031
4	0.31	0.00000	378.95	0.00000	172.57	0.975	0.00122
5	2.23	0.00000	378.95	0.00000	172.87	1.507	0.00247
6	6.18	0.00000	378.95	0.00000	173.43	2.003	0.00413
7	11.53	0.00000	378.95	0.00000	174.21	2.445	0.00619
8	17.74	0.00000	378.95	0.00000	175.08	2.855	0.00883
9	23.84	0.00000	378.95	0.00000	176.01	3.220	0.01189
10	29.86	0.00000	378.95	0.00000	177.06	3.571	0.01527
11	35.49	0.00000	378.95	0.00000	177.94	3.919	0.01932
12	41.22	0.00000	378.95	0.00000	178.86	4.250	0.02284
13	47.36	0.00000	378.95	0.00000	179.76	4.561	0.02788
14	53.05	0.00000	378.95	0.00000	180.67	4.886	0.03336
15	58.58	0.00000	378.95	0.00000	181.54	5.198	0.03933
16	64.17	0.00000	378.95	0.00000	182.37	5.504	0.04531
17	69.13	0.00000	378.95	0.00000	183.12	5.787	0.05214
18	73.25	0.00000	378.95	0.00000	183.82	6.060	0.05938
19	77.26	0.00000	378.95	0.00000	184.43	6.327	0.06693
20	80.82	0.00000	378.95	0.00000	184.99	6.588	0.07510
21	83.83	0.00000	378.95	0.00000	185.46	6.838	0.08372
22	86.58	0.00000	378.95	0.00000	185.88	7.074	0.09302
23	88.68	0.00000	378.95	0.00000	186.27	7.305	0.10283
24	90.47	0.00000	378.95	0.00000	186.55	7.518	0.11303
25	91.97	0.00000	378.95	0.00000	186.72	7.712	0.12363
26	92.32	0.00000	378.95	0.00000	186.72	7.859	0.13411
27	91.98	0.00000	378.95	0.00000	186.67	8.002	0.14529
28	89.45	0.00000	378.95	0.00000	186.28	8.118	0.15620
29	85.51	0.00000	378.95	0.00000	185.67	8.210	0.16811
30	80.73	0.00000	378.95	0.00000	184.93	8.289	0.17968
31	75.10	0.00000	378.95	0.00000	184.06	8.329	0.19203
32	68.00	0.00000	378.95	0.00000	182.96	8.341	0.20547
33	60.68	0.00000	378.95	0.00000	181.83	8.341	0.21874
34	52.53	0.00000	378.95	0.00000	180.56	8.342	0.23311
35	45.03	0.00000	378.95	0.00000	179.40	8.345	0.24782
36	37.86	0.00000	378.95	0.00000	178.29	8.330	0.26264
37	31.84	0.00000	378.95	0.00000	177.36	8.312	0.27784
38	25.38	0.00000	378.95	0.00000	176.36	8.297	0.29356
39	19.34	0.00000	378.95	0.00000	175.43	8.290	0.30985
40	12.78	0.00000	378.95	0.00000	174.41	8.280	0.32656

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.05	0.00000	2.82	-0.00001	209.5	203.8	0.00001	-0.00001
3	-0.19	0.00000	11.23	0.00008	217.7	195.2	0.00004	-0.00004
4	0.22	0.00000	23.22	0.00030	229.7	183.3	0.00015	-0.00015
5	1.58	0.00000	35.89	0.00061	242.8	171.0	0.00030	-0.00030
6	4.37	0.00000	47.69	0.00102	255.4	160.0	0.00051	-0.00051
7	8.15	0.00000	58.24	0.00152	267.2	150.4	0.00076	-0.00076
8	12.54	0.00000	68.00	0.00217	278.4	141.9	0.00109	-0.00109
9	16.86	0.00000	76.68	0.00292	288.5	134.2	0.00146	-0.00146
10	21.11	0.00000	85.04	0.00376	298.1	126.8	0.00188	-0.00188
11	25.09	0.00000	93.33	0.00475	307.7	119.4	0.00238	-0.00238
12	29.14	0.00000	101.22	0.00562	316.9	112.4	0.00281	-0.00281
13	33.48	0.00000	108.64	0.00686	325.8	106.0	0.00343	-0.00343
14	37.51	0.00000	116.37	0.00821	334.9	99.2	0.00410	-0.00410
15	41.42	0.00000	123.80	0.00968	343.6	92.6	0.00484	-0.00484
16	45.37	0.00000	131.08	0.01115	352.3	86.2	0.00558	-0.00558
17	48.88	0.00000	137.82	0.01283	360.2	80.3	0.00642	-0.00642
18	51.79	0.00000	144.33	0.01461	367.7	74.4	0.00731	-0.00731
19	54.62	0.00000	150.69	0.01647	375.0	68.7	0.00824	-0.00824
20	57.14	0.00000	156.91	0.01848	382.0	63.0	0.00924	-0.00924
21	59.27	0.00000	162.84	0.02060	388.6	57.6	0.01030	-0.01030
22	61.21	0.00000	168.48	0.02289	394.9	52.4	0.01144	-0.01144
23	62.70	0.00000	173.97	0.02530	400.8	47.3	0.01265	-0.01265
24	63.96	0.00000	179.06	0.02781	406.3	42.5	0.01391	-0.01391
25	65.02	0.00000	183.68	0.03042	411.3	38.2	0.01521	-0.01521
26	65.27	0.00000	187.17	0.03300	414.9	34.9	0.01650	-0.01650
27	65.03	0.00000	190.58	0.03575	418.1	31.5	0.01788	-0.01788
28	63.24	0.00000	193.33	0.03844	420.2	28.4	0.01922	-0.01922
29	60.45	0.00000	195.54	0.04137	421.4	25.6	0.02068	-0.02068
30	57.07	0.00000	197.41	0.04421	422.0	23.1	0.02211	-0.02211
31	53.10	0.00000	198.37	0.04725	421.6	21.3	0.02363	-0.02363
32	48.08	0.00000	198.65	0.05056	420.1	19.9	0.02528	-0.02528
33	42.90	0.00000	198.65	0.05382	418.4	18.8	0.02691	-0.02691
34	37.14	0.00000	198.68	0.05736	416.5	17.4	0.02868	-0.02868
35	31.84	0.00000	198.74	0.06098	414.8	16.1	0.03049	-0.03049
36	26.77	0.00000	198.40	0.06463	412.9	15.2	0.03231	-0.03231
37	22.51	0.00000	197.95	0.06837	411.1	14.6	0.03418	-0.03418
38	17.94	0.00000	197.61	0.07223	409.4	13.7	0.03612	-0.03612
39	13.67	0.00000	197.44	0.07624	407.9	12.8	0.03812	-0.03812
40	9.04	0.00000	197.20	0.08035	406.3	11.8	0.04018	-0.04018



Test Name: 14\_11/20/90

Material: EPK  
Shape: Dogbone  
a/l: 0.4  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Fixed  
Beta: 45

Length: 12.344 (cm)  
Volume: 174.552 (cm<sup>3</sup>)  
Inner\_radius: 2.553 (cm)

Area: 14.126 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.319 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.08	0.00000	378.95	0.00000	172.25	0.094	0.00009
3	-0.31	0.00000	378.95	0.00000	172.20	0.375	0.00047
4	-0.30	0.00000	378.95	0.00000	172.19	0.843	0.00141
5	0.11	0.00000	378.95	0.00000	172.14	1.462	0.00278
6	0.50	0.00000	378.95	0.00000	172.05	2.103	0.00462
7	2.66	0.00000	378.95	0.00000	171.94	2.575	0.00715
8	6.26	0.00000	378.95	0.00000	171.73	2.974	0.01001
9	11.15	0.00000	378.95	0.00000	171.43	3.348	0.01317
10	16.16	0.00000	378.95	0.00000	170.98	3.693	0.01683
11	21.22	0.00000	378.95	0.00000	170.40	4.010	0.02094
12	25.91	0.00000	378.95	0.00000	169.70	4.334	0.02544
13	31.33	0.00000	378.95	0.00000	168.82	4.648	0.03046
14	36.86	0.00000	378.95	0.00000	167.81	4.947	0.03587
15	41.95	0.00000	378.95	0.00000	166.61	5.242	0.04151
16	46.59	0.00000	378.95	0.00000	165.25	5.522	0.04750
17	50.72	0.00000	378.95	0.00000	163.78	5.788	0.05377
18	55.01	0.00000	378.95	0.00000	162.15	6.045	0.06054
19	59.13	0.00000	378.95	0.00000	160.41	6.294	0.06782
20	62.76	0.00000	378.95	0.00000	158.53	6.530	0.07530
21	64.69	0.00000	378.95	0.00000	156.52	6.751	0.08329
22	66.04	0.00000	378.95	0.00000	154.35	6.956	0.09199
23	66.41	0.00000	378.95	0.00000	152.14	7.150	0.10122
24	66.29	0.00000	378.95	0.00000	149.85	7.327	0.11089
25	66.68	0.00000	378.95	0.00000	147.53	7.486	0.12093
26	67.17	0.00000	378.95	0.00000	145.06	7.641	0.13148
27	67.52	0.00000	378.95	0.00000	142.62	7.795	0.14246
28	67.27	0.00000	378.95	0.00000	140.08	7.939	0.15382
29	66.28	0.00000	378.95	0.00000	137.61	8.052	0.16546
30	63.69	0.00000	378.95	0.00000	135.11	8.139	0.17745
31	59.47	0.00000	378.95	0.00000	132.54	8.201	0.19011
32	54.04	0.00000	378.95	0.00000	129.94	8.263	0.20328
33	48.42	0.00000	378.95	0.00000	127.29	8.325	0.21652
34	43.02	0.00000	378.95	0.00000	124.75	8.379	0.23038
35	37.99	0.00000	378.95	0.00000	122.22	8.415	0.24478
36	33.58	0.00000	378.95	0.00000	119.82	8.433	0.25968
37	29.08	0.00000	378.95	0.00000	117.64	8.429	0.27463
38	23.17	0.00000	378.95	0.00000	115.48	8.419	0.28990
39	17.05	0.00000	378.95	0.00000	113.35	8.406	0.30599
40	10.79	0.00000	378.95	0.00000	111.31	8.392	0.32266

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.06	0.00000	2.23	0.00002	208.9	204.4	0.00001	-0.00001
3	-0.22	0.00000	8.92	0.00011	215.6	197.7	0.00006	-0.00006
4	-0.21	0.00000	20.08	0.00034	226.7	186.6	0.00017	-0.00017
5	0.08	0.00000	34.81	0.00067	241.7	172.0	0.00033	-0.00033
6	0.35	0.00000	50.09	0.00111	257.2	157.0	0.00055	-0.00055
7	1.88	0.00000	61.32	0.00171	269.3	146.6	0.00086	-0.00086
8	4.43	0.00000	70.84	0.00239	280.3	138.6	0.00120	-0.00120
9	7.88	0.00000	79.74	0.00315	291.3	131.6	0.00157	-0.00157
10	11.43	0.00000	87.95	0.00403	301.8	125.5	0.00201	-0.00201
11	15.00	0.00000	95.50	0.00501	311.8	120.3	0.00250	-0.00250
12	18.32	0.00000	103.22	0.00608	322.0	114.8	0.00304	-0.00304
13	22.15	0.00000	110.70	0.00729	332.5	110.0	0.00364	-0.00364
14	26.06	0.00000	117.82	0.00858	342.7	105.6	0.00429	-0.00429
15	29.65	0.00000	124.84	0.00993	352.9	101.5	0.00496	-0.00496
16	32.94	0.00000	131.53	0.01136	362.7	97.6	0.00568	-0.00568
17	35.86	0.00000	137.85	0.01286	372.1	94.1	0.00643	-0.00643
18	38.89	0.00000	143.98	0.01448	381.5	91.0	0.00724	-0.00724
19	41.80	0.00000	149.90	0.01622	390.8	88.1	0.00811	-0.00811
20	44.37	0.00000	155.52	0.01801	399.7	85.5	0.00901	-0.00901
21	45.73	0.00000	160.79	0.01992	407.7	82.9	0.00996	-0.00996
22	46.69	0.00000	165.66	0.02200	415.2	80.6	0.01100	-0.01100
23	46.95	0.00000	170.29	0.02421	422.2	78.4	0.01211	-0.01211
24	46.87	0.00000	174.51	0.02653	428.6	76.5	0.01326	-0.01326
25	47.14	0.00000	178.28	0.02893	434.8	75.2	0.01446	-0.01446
26	47.49	0.00000	181.99	0.03145	441.2	74.1	0.01573	-0.01573
27	47.74	0.00000	185.66	0.03408	447.4	73.0	0.01704	-0.01704
28	47.56	0.00000	189.07	0.03679	453.2	72.1	0.01840	-0.01840
29	46.86	0.00000	191.78	0.03958	458.0	71.6	0.01979	-0.01979
30	45.03	0.00000	193.85	0.04245	461.5	71.2	0.02122	-0.02122
31	42.04	0.00000	195.32	0.04547	463.9	71.0	0.02274	-0.02274
32	38.21	0.00000	196.80	0.04862	465.8	70.4	0.02431	-0.02431
33	34.23	0.00000	198.26	0.05179	467.8	69.8	0.02590	-0.02590
34	30.41	0.00000	199.55	0.05511	469.5	69.3	0.02755	-0.02755
35	26.86	0.00000	200.42	0.05855	471.0	69.3	0.02928	-0.02928
36	23.74	0.00000	200.85	0.06212	472.2	69.8	0.03106	-0.03106
37	20.56	0.00000	200.74	0.06569	472.6	70.6	0.03285	-0.03285
38	16.38	0.00000	200.52	0.06934	472.3	71.0	0.03467	-0.03467
39	12.06	0.00000	200.20	0.07319	471.9	71.3	0.03660	-0.03660
40	7.63	0.00000	199.87	0.07718	471.4	71.6	0.03859	-0.03859

**APPENDIX VIII**  
**TESTS LISTED IN TABLE 2.8**

Test Name: 81\_07/03/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 11.957 (cm)  
Volume: 169.461 (cm<sup>3</sup>)  
Inner\_radius: 2.556 (cm)

Area: 14.158 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.335 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.05	-0.00001	378.95	0.00000	172.21	0.075	0.00003
3	-0.20	-0.00002	378.95	0.00000	172.08	0.302	0.00010
4	-0.47	-0.00010	378.95	0.00000	171.86	0.676	0.00075
5	-0.79	-0.00028	378.95	0.00000	171.49	1.130	0.00159
6	-0.86	-0.00068	378.95	0.00000	170.98	1.565	0.00285
7	-0.42	-0.00134	378.95	0.00000	170.30	1.968	0.00466
8	0.07	-0.00225	378.95	0.00000	169.34	2.348	0.00671
9	0.85	-0.00359	378.95	0.00000	168.16	2.694	0.00907
10	1.24	-0.00531	378.95	0.00000	166.70	3.033	0.01195
11	1.73	-0.00740	378.95	0.00000	165.04	3.327	0.01531
12	2.07	-0.00974	378.95	0.00000	163.12	3.612	0.01907
13	2.11	-0.01242	378.95	0.00000	161.01	3.894	0.02335
14	2.15	-0.01528	378.95	0.00000	158.74	4.166	0.02761
15	2.42	-0.01843	378.95	0.00000	156.28	4.425	0.03233
16	2.67	-0.02186	378.95	0.00000	153.77	4.683	0.03735
17	2.22	-0.02529	378.95	0.00000	151.13	4.935	0.04277
18	1.18	-0.02898	378.95	0.00000	148.51	5.174	0.04854
19	-0.48	-0.03271	378.95	0.00000	145.87	5.387	0.05476
20	-2.60	-0.03672	378.95	0.00000	143.15	5.626	0.06144
21	-4.16	-0.04092	378.95	0.00000	140.41	5.910	0.06827
22	-5.55	-0.04527	378.95	0.00000	137.70	6.089	0.07581
23	-6.98	-0.04991	378.95	0.00000	135.06	6.211	0.08361
24	-8.25	-0.05468	378.95	0.00000	132.38	6.349	0.09198
25	-9.40	-0.05943	378.95	0.00000	130.27	6.514	0.10050
26	-10.15	-0.06401	378.95	0.00000	127.51	6.645	0.10939
27	-10.74	-0.06844	378.95	0.00000	124.65	6.781	0.11845
28	-11.54	-0.07288	378.95	0.00000	121.88	6.899	0.12792
29	-12.65	-0.07699	378.95	0.00000	119.39	7.003	0.13749
30	-14.08	-0.08067	378.95	0.00000	116.97	7.087	0.14785
31	-15.98	-0.08381	378.95	0.00000	114.62	7.154	0.15816
32	-17.69	-0.08677	378.95	0.00000	112.38	7.201	0.16926
33	-19.37	-0.08950	378.95	0.00000	110.41	7.233	0.18101
34	-21.12	-0.09136	378.95	0.00000	108.52	7.243	0.19288
35	-22.69	-0.09238	378.95	0.00000	106.76	7.263	0.20492
36	-24.14	-0.09282	378.95	0.00000	105.07	7.305	0.21734
37	-25.65	-0.09302	378.95	0.00000	103.57	7.312	0.22996
38	-26.35	-0.09300	378.95	0.00000	102.17	7.279	0.24297
39	-27.08	-0.09288	378.95	0.00000	100.90	7.225	0.25645
40	-27.60	-0.09258	378.95	0.00000	99.67	7.209	0.27013

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.03	-0.00000	1.80	0.00001	208.5	204.9	0.00000	-0.00000
3	-0.14	-0.00000	7.21	0.00003	214.0	199.6	0.00001	-0.00001
4	-0.33	-0.00001	16.15	0.00018	223.1	190.8	0.00009	-0.00009
5	-0.55	-0.00002	27.01	0.00039	234.2	180.2	0.00019	-0.00020
6	-0.61	-0.00006	37.40	0.00070	245.1	170.3	0.00034	-0.00037
7	-0.30	-0.00011	47.04	0.00114	255.5	161.5	0.00055	-0.00061
8	0.05	-0.00019	56.12	0.00165	265.8	153.5	0.00079	-0.00088
9	0.60	-0.00030	64.42	0.00222	275.5	146.7	0.00106	-0.00121
10	0.88	-0.00044	72.53	0.00293	285.2	140.2	0.00139	-0.00161
11	1.22	-0.00062	79.58	0.00376	294.1	134.9	0.00178	-0.00209
12	1.46	-0.00081	86.42	0.00468	303.0	130.1	0.00221	-0.00262
13	1.49	-0.00104	93.19	0.00572	311.9	125.5	0.00271	-0.00323
14	1.52	-0.00128	99.74	0.00677	320.7	121.2	0.00320	-0.00383
15	1.71	-0.00154	106.00	0.00792	329.5	117.5	0.00374	-0.00451
16	1.89	-0.00183	112.22	0.00914	338.3	113.9	0.00432	-0.00523
17	1.57	-0.00211	118.30	0.01047	346.9	110.3	0.00494	-0.00600
18	0.83	-0.00242	124.09	0.01188	355.0	106.8	0.00560	-0.00681
19	-0.34	-0.00273	129.27	0.01339	362.2	103.6	0.00632	-0.00768
20	-1.84	-0.00307	135.07	0.01502	370.0	99.8	0.00709	-0.00862
21	-2.94	-0.00342	141.97	0.01668	379.0	95.1	0.00787	-0.00958
22	-3.93	-0.00378	146.34	0.01851	385.6	92.9	0.00873	-0.01062
23	-4.94	-0.00417	149.36	0.02040	390.8	92.0	0.00963	-0.01171
24	-5.84	-0.00456	152.77	0.02243	396.5	90.9	0.01058	-0.01287
25	-6.66	-0.00496	156.83	0.02449	402.2	88.5	0.01156	-0.01404
26	-7.20	-0.00534	160.08	0.02664	408.0	87.7	0.01258	-0.01524
27	-7.62	-0.00571	163.44	0.02883	414.0	87.0	0.01361	-0.01647
28	-8.19	-0.00608	166.38	0.03112	419.4	86.5	0.01470	-0.01773
29	-8.98	-0.00642	168.97	0.03343	424.1	86.0	0.01579	-0.01900
30	-10.00	-0.00672	171.07	0.03594	428.1	85.8	0.01698	-0.02034
31	-11.35	-0.00698	172.77	0.03843	431.5	85.8	0.01817	-0.02166
32	-12.57	-0.00723	173.96	0.04111	434.4	86.2	0.01945	-0.02306
33	-13.77	-0.00746	174.79	0.04395	436.6	86.7	0.02081	-0.02454
34	-15.01	-0.00761	175.09	0.04682	438.2	87.7	0.02219	-0.02600
35	-16.13	-0.00770	175.59	0.04973	439.9	88.3	0.02360	-0.02745
36	-17.16	-0.00773	176.61	0.05274	442.1	88.5	0.02507	-0.02894
37	-18.23	-0.00775	176.78	0.05581	443.3	89.2	0.02657	-0.03044
38	-18.73	-0.00775	175.99	0.05896	443.7	91.2	0.02811	-0.03199
39	-19.25	-0.00774	174.68	0.06224	443.4	93.5	0.02972	-0.03359
40	-19.62	-0.00771	174.27	0.06556	444.0	94.9	0.03136	-0.03521

Test Name: 82\_07/09/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.163 (cm)  
Volume: 170.696 (cm<sup>3</sup>)  
Inner\_radius: 2.543 (cm)

Area: 14.020 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.306 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.10	-0.00004	378.95	0.00000	172.25	0.119	0.00012
3	-0.32	-0.00013	378.95	0.00000	172.10	0.526	0.00086
4	-0.55	-0.00055	378.95	0.00000	171.85	1.011	0.00215
5	0.14	-0.00149	378.95	0.00000	171.37	1.485	0.00411
6	0.94	-0.00301	378.95	0.00000	170.65	1.920	0.00661
7	0.99	-0.00488	378.95	0.00000	169.64	2.334	0.00977
8	0.93	-0.00732	378.95	0.00000	168.27	2.736	0.01335
9	1.38	-0.01005	378.95	0.00000	166.59	3.108	0.01716
10	1.79	-0.01326	378.95	0.00000	164.63	3.472	0.02166
11	1.96	-0.01686	378.95	0.00000	162.42	3.800	0.02636
12	2.32	-0.02081	378.95	0.00000	160.09	4.119	0.03200
13	2.61	-0.02507	378.95	0.00000	157.38	4.447	0.03749
14	2.67	-0.02977	378.95	0.00000	154.51	4.739	0.04347
15	2.51	-0.03485	378.95	0.00000	151.54	4.983	0.04926
16	2.15	-0.04023	378.95	0.00000	148.54	5.341	0.05568
17	1.68	-0.04598	378.95	0.00000	145.25	5.488	0.06348
18	1.24	-0.05191	378.95	0.00000	141.91	5.731	0.07205
19	0.95	-0.05813	378.95	0.00000	138.58	5.972	0.08074
20	0.84	-0.06455	378.95	0.00000	135.58	6.213	0.09017
21	0.87	-0.07086	378.95	0.00000	132.05	6.449	0.10026
22	1.10	-0.07698	378.95	0.00000	128.57	7.007	0.11106
23	0.51	-0.08360	378.95	0.00000	125.16	6.885	0.12217
24	-0.03	-0.09025	378.95	0.00000	121.92	7.069	0.13365
25	-0.89	-0.09666	378.95	0.00000	118.71	7.259	0.14585
26	-1.11	-0.10310	378.95	0.00000	115.44	7.428	0.15858
27	-1.68	-0.10924	378.95	0.00000	112.36	7.593	0.17158
28	-1.86	-0.11504	378.95	0.00000	109.37	7.725	0.18515
29	-2.80	-0.12030	378.95	0.00000	106.50	7.877	0.19961
30	-4.15	-0.12553	378.95	0.00000	103.73	7.985	0.21455
31	-5.40	-0.12987	378.95	0.00000	101.17	8.060	0.22947
32	-5.72	-0.13262	378.95	0.00000	98.70	8.170	0.24513
33	-5.44	-0.13434	378.95	0.00000	96.24	8.242	0.26150
34	-4.84	-0.13484	378.95	0.00000	94.03	8.309	0.27838
35	-4.87	-0.13522	378.95	0.00000	91.81	8.423	0.29550
36	-4.55	-0.13518	378.95	0.00000	89.70	8.526	0.31311
37	-3.66	-0.13452	378.95	0.00000	87.80	8.566	0.33138
38	-3.48	-0.13305	378.95	0.00000	85.93	8.590	0.35017
39	-3.89	-0.13097	378.95	0.00000	84.37	8.640	0.36940
40	-5.85	-0.12780	378.95	0.00000	82.75	8.655	0.38940

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.07	-0.00000	2.86	0.00003	209.5	203.8	0.00001	-0.00002
3	-0.23	-0.00001	12.68	0.00021	219.4	194.1	0.00010	-0.00011
4	-0.39	-0.00005	24.35	0.00052	231.3	182.6	0.00025	-0.00027
5	0.10	-0.00012	35.78	0.00099	243.4	171.8	0.00047	-0.00054
6	0.67	-0.00025	46.27	0.00160	254.9	162.4	0.00076	-0.00088
7	0.70	-0.00040	56.26	0.00236	265.9	153.4	0.00112	-0.00132
8	0.66	-0.00060	65.96	0.00323	277.0	145.1	0.00152	-0.00183
9	0.98	-0.00083	74.95	0.00415	287.8	137.9	0.00196	-0.00237
10	1.28	-0.00109	83.77	0.00523	298.7	131.2	0.00247	-0.00301
11	1.40	-0.00139	91.73	0.00636	309.0	125.5	0.00300	-0.00369
12	1.66	-0.00171	99.47	0.00772	319.2	120.2	0.00364	-0.00449
13	1.87	-0.00206	107.45	0.00904	329.9	115.0	0.00426	-0.00529
14	1.91	-0.00244	114.58	0.01048	340.0	110.8	0.00494	-0.00616
15	1.79	-0.00286	120.55	0.01186	348.9	107.8	0.00559	-0.00702
16	1.54	-0.00330	129.28	0.01340	360.5	101.9	0.00632	-0.00797
17	1.20	-0.00377	132.94	0.01527	367.2	101.4	0.00720	-0.00908
18	0.89	-0.00426	138.92	0.01732	376.4	98.6	0.00816	-0.01029
19	0.68	-0.00477	144.88	0.01939	385.6	95.8	0.00914	-0.01152
20	0.60	-0.00529	150.85	0.02163	394.5	92.8	0.01020	-0.01285
21	0.63	-0.00581	156.70	0.02404	403.9	90.5	0.01133	-0.01424
22	0.79	-0.00631	170.38	0.02661	421.2	80.4	0.01254	-0.01570
23	0.36	-0.00685	167.56	0.02924	421.5	86.4	0.01379	-0.01721
24	-0.02	-0.00739	172.18	0.03197	429.2	84.8	0.01507	-0.01877
25	-0.64	-0.00792	176.95	0.03486	436.9	83.0	0.01643	-0.02039
26	-0.80	-0.00844	181.20	0.03787	444.3	81.9	0.01786	-0.02208
27	-1.21	-0.00894	185.36	0.04094	451.3	80.6	0.01931	-0.02378
28	-1.34	-0.00941	188.72	0.04415	457.6	80.2	0.02082	-0.02553
29	-2.02	-0.00984	192.56	0.04757	464.0	78.9	0.02244	-0.02736
30	-2.99	-0.01027	195.33	0.05110	469.1	78.4	0.02412	-0.02925
31	-3.89	-0.01062	197.26	0.05462	473.1	78.6	0.02579	-0.03110
32	-4.12	-0.01084	200.03	0.05833	478.2	78.1	0.02757	-0.03299
33	-3.92	-0.01098	201.84	0.06221	482.6	78.9	0.02943	-0.03492
34	-3.49	-0.01103	203.47	0.06622	486.7	79.7	0.03137	-0.03688
35	-3.51	-0.01106	206.28	0.07029	491.7	79.1	0.03335	-0.03888
36	-3.28	-0.01105	208.80	0.07448	496.4	78.8	0.03539	-0.04092
37	-2.64	-0.01100	209.78	0.07883	499.6	80.0	0.03752	-0.04302
38	-2.51	-0.01088	210.33	0.08332	502.1	81.4	0.03973	-0.04517
39	-2.80	-0.01071	211.50	0.08792	504.7	81.7	0.04201	-0.04736
40	-4.21	-0.01045	211.77	0.09271	505.9	82.3	0.04440	-0.04963

Test Name: 83\_07/11/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.054 (cm)  
Volume: 169.296 (cm<sup>3</sup>)  
Inner\_radius: 2.544 (cm)

Area: 14.031 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.308 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.05	-0.00002	378.95	0.00000	172.18	0.086	0.00008
3	-0.20	-0.00010	378.95	0.00000	171.99	0.357	0.00014
4	-0.17	-0.00041	378.95	0.00000	171.64	0.705	0.00063
5	0.11	-0.00109	378.95	0.00000	171.13	1.090	0.00168
6	0.40	-0.00216	378.95	0.00000	170.42	1.436	0.00296
7	0.59	-0.00373	378.95	0.00000	169.43	1.801	0.00477
8	1.05	-0.00565	378.95	0.00000	168.25	2.144	0.00715
9	1.85	-0.00797	378.95	0.00000	166.75	2.478	0.00996
10	2.46	-0.01062	378.95	0.00000	165.12	2.796	0.01314
11	2.81	-0.01355	378.95	0.00000	163.32	3.103	0.01667
12	3.07	-0.01682	378.95	0.00000	161.28	3.411	0.02069
13	2.97	-0.02050	378.95	0.00000	159.06	3.698	0.02500
14	2.81	-0.02449	378.95	0.00000	156.60	3.974	0.02956
15	2.89	-0.02869	378.95	0.00000	154.15	4.255	0.03456
16	2.66	-0.03300	378.95	0.00000	151.61	4.532	0.04033
17	2.53	-0.03765	378.95	0.00000	148.93	4.786	0.04642
18	2.32	-0.04255	378.95	0.00000	146.28	5.024	0.05292
19	1.65	-0.04766	378.95	0.00000	143.56	5.260	0.05965
20	0.95	-0.05295	378.95	0.00000	140.77	5.478	0.06663
21	0.28	-0.05829	378.95	0.00000	138.10	5.686	0.07402
22	-0.18	-0.06379	378.95	0.00000	135.33	5.889	0.08195
23	-0.62	-0.06949	378.95	0.00000	132.61	6.070	0.09018
24	-0.78	-0.07501	378.95	0.00000	129.97	6.277	0.09873
25	-1.26	-0.08058	378.95	0.00000	127.31	6.425	0.10764
26	-1.99	-0.08597	378.95	0.00000	124.72	6.594	0.11729
27	-2.49	-0.09160	378.95	0.00000	122.13	6.749	0.12715
28	-3.50	-0.09739	378.95	0.00000	119.55	6.911	0.13794
29	-4.25	-0.10331	378.95	0.00000	117.03	7.044	0.14906
30	-5.25	-0.10906	378.95	0.00000	114.48	7.187	0.16070
31	-7.22	-0.11354	378.95	0.00000	112.15	7.265	0.17232
32	-9.00	-0.11824	378.95	0.00000	109.91	7.355	0.18439
33	-11.07	-0.12283	378.95	0.00000	107.85	7.391	0.19668
34	-12.66	-0.12695	378.95	0.00000	105.92	7.399	0.20921
35	-14.21	-0.13030	378.95	0.00000	104.13	7.381	0.22249
36	-15.66	-0.13294	378.95	0.00000	102.41	7.373	0.23614
37	-17.15	-0.13483	378.95	0.00000	100.82	7.363	0.25018
38	-18.21	-0.13604	378.95	0.00000	99.41	7.369	0.26494
39	-19.05	-0.13674	378.95	0.00000	97.99	7.364	0.27989
40	-19.85	-0.13737	378.95	0.00000	96.67	7.305	0.29493



	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.03	-0.00000	2.06	0.00002	208.8	204.7	0.00001	-0.00001
3	-0.14	-0.00001	8.60	0.00004	215.5	198.3	0.00002	-0.00002
4	-0.12	-0.00003	16.96	0.00015	224.2	190.3	0.00007	-0.00009
5	0.08	-0.00009	26.24	0.00041	234.1	181.6	0.00019	-0.00024
6	0.29	-0.00018	34.57	0.00072	243.2	174.1	0.00034	-0.00043
7	0.42	-0.00031	43.35	0.00116	253.1	166.4	0.00055	-0.00070
8	0.75	-0.00047	51.62	0.00175	262.7	159.5	0.00082	-0.00106
9	1.31	-0.00066	59.69	0.00243	272.5	153.2	0.00115	-0.00148
10	1.75	-0.00088	67.36	0.00320	282.1	147.3	0.00151	-0.00195
11	2.00	-0.00112	74.80	0.00406	291.4	141.8	0.00192	-0.00248
12	2.19	-0.00139	82.23	0.00504	301.0	136.5	0.00238	-0.00308
13	2.12	-0.00170	89.21	0.00609	310.2	131.7	0.00288	-0.00372
14	2.01	-0.00203	95.91	0.00719	319.3	127.4	0.00340	-0.00441
15	2.07	-0.00238	102.75	0.00841	328.6	123.1	0.00397	-0.00516
16	1.90	-0.00273	109.50	0.00980	337.8	118.8	0.00463	-0.00600
17	1.81	-0.00312	115.69	0.01128	346.6	115.2	0.00533	-0.00688
18	1.65	-0.00352	121.53	0.01285	355.0	112.0	0.00607	-0.00783
19	1.18	-0.00395	127.31	0.01448	363.3	108.7	0.00683	-0.00881
20	0.68	-0.00438	132.68	0.01616	371.2	105.8	0.00763	-0.00982
21	0.20	-0.00482	137.80	0.01794	378.7	103.1	0.00847	-0.01088
22	-0.13	-0.00528	142.82	0.01985	386.4	100.7	0.00937	-0.01200
23	-0.45	-0.00575	147.32	0.02183	393.4	98.8	0.01030	-0.01317
24	-0.56	-0.00620	152.43	0.02388	401.1	96.3	0.01126	-0.01437
25	-0.90	-0.00666	156.15	0.02602	407.3	95.0	0.01227	-0.01560
26	-1.43	-0.00711	160.35	0.02833	413.9	93.2	0.01336	-0.01691
27	-1.78	-0.00757	164.24	0.03069	420.2	91.7	0.01447	-0.01826
28	-2.51	-0.00805	168.31	0.03327	426.5	89.8	0.01568	-0.01971
29	-3.05	-0.00853	171.67	0.03593	432.1	88.7	0.01694	-0.02120
30	-3.77	-0.00901	175.27	0.03871	437.9	87.3	0.01825	-0.02275
31	-5.19	-0.00938	177.27	0.04148	441.5	86.9	0.01956	-0.02424
32	-6.47	-0.00976	179.58	0.04436	445.4	86.2	0.02092	-0.02580
33	-7.96	-0.01014	180.57	0.04729	447.7	86.5	0.02230	-0.02737
34	-9.11	-0.01048	180.85	0.05028	449.4	87.6	0.02372	-0.02896
35	-10.22	-0.01075	180.47	0.05345	450.2	89.2	0.02523	-0.03060
36	-11.27	-0.01097	180.35	0.05671	451.3	90.5	0.02678	-0.03227
37	-12.34	-0.01112	180.14	0.06007	452.2	91.7	0.02839	-0.03395
38	-13.11	-0.01122	180.31	0.06360	453.4	92.6	0.03009	-0.03570
39	-13.71	-0.01128	180.22	0.06718	454.4	93.8	0.03182	-0.03746
40	-14.29	-0.01133	178.78	0.07079	454.1	96.2	0.03357	-0.03923

Test Name: 84\_07/17/91

Material: EPK  
 Shape: Dogbone  
 a/l: 0.183  
 Angle: 0.0  
 Consol.: Ko OC  
 OCR-4

Control: Deform  
 Loading: Static  
 Height: Variable  
 Beta: 45

Length: 12.074 (cm)  
 Volume: 170.530 (cm<sup>3</sup>)  
 Inner\_radius: 2.552 (cm)

Area: 14.109 (cm<sup>2</sup>)  
 ECP: 206.700 (kPa)  
 Outter\_radius: 3.317 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.69	-0.00005	378.95	0.00000	172.19	0.077	0.00015
3	-0.68	-0.00019	378.95	0.00000	172.00	0.308	0.00072
4	-1.45	-0.00050	378.95	0.00000	171.68	0.648	0.00162
5	-1.15	-0.00114	378.95	0.00000	171.23	1.001	0.00299
6	-0.79	-0.00218	378.95	0.00000	170.63	1.345	0.00471
7	-0.03	-0.00360	378.95	0.00000	169.84	1.672	0.00686
8	0.75	-0.00538	378.95	0.00000	168.85	2.000	0.00934
9	0.73	-0.00753	378.95	0.00000	167.65	2.346	0.01214
10	0.59	-0.01010	378.95	0.00000	166.25	2.716	0.01544
11	1.11	-0.01311	378.95	0.00000	164.60	3.039	0.01907
12	1.57	-0.01649	378.95	0.00000	162.77	3.339	0.02310
13	1.59	-0.02022	378.95	0.00000	160.76	3.619	0.02745
14	0.89	-0.02429	378.95	0.00000	158.58	3.854	0.03219
15	-0.42	-0.02866	378.95	0.00000	156.28	4.058	0.03727
16	0.20	-0.03331	378.95	0.00000	153.86	4.292	0.04275
17	0.05	-0.03812	378.95	0.00000	151.36	4.543	0.04871
18	0.31	-0.04303	378.95	0.00000	148.82	4.770	0.05452
19	0.60	-0.04799	378.95	0.00000	146.23	4.977	0.06118
20	0.39	-0.05310	378.95	0.00000	143.58	5.180	0.06828
21	-0.24	-0.05838	378.95	0.00000	140.89	5.372	0.07572
22	-0.22	-0.06382	378.95	0.00000	138.19	5.549	0.08337
23	-1.07	-0.06938	378.95	0.00000	135.48	5.734	0.09162
24	-1.12	-0.07493	378.95	0.00000	132.77	5.911	0.10022
25	-0.88	-0.08045	378.95	0.00000	130.06	6.082	0.10917
26	-1.29	-0.08589	378.95	0.00000	127.48	6.215	0.11877
27	-2.37	-0.09115	378.95	0.00000	124.85	6.362	0.12842
28	-2.17	-0.09629	378.95	0.00000	122.21	6.504	0.13826
29	-2.27	-0.10128	378.95	0.00000	119.60	6.643	0.14866
30	-1.42	-0.10605	378.95	0.00000	117.06	6.781	0.15898
31	-1.44	-0.11066	378.95	0.00000	114.62	6.891	0.17031
32	-1.90	-0.11512	378.95	0.00000	112.27	6.977	0.18183
33	-2.73	-0.11922	378.95	0.00000	110.03	7.055	0.19389
34	-3.02	-0.12279	378.95	0.00000	107.95	7.109	0.20644
35	-4.21	-0.12575	378.95	0.00000	106.07	7.141	0.21901
36	-6.23	-0.12838	378.95	0.00000	104.36	7.120	0.23253
37	-9.03	-0.13084	378.95	0.00000	102.86	7.053	0.24606
38	-10.33	-0.13294	378.95	0.00000	101.54	6.994	0.25995
39	-11.35	-0.13445	378.95	0.00000	100.36	6.982	0.27336
40	-12.69	-0.13582	378.95	0.00000	99.18	6.980	0.28768

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.49	-0.00000	1.84	0.00004	208.4	204.7	0.00002	-0.00002
3	-0.48	-0.00002	7.34	0.00018	214.1	199.4	0.00008	-0.00009
4	-1.03	-0.00004	15.46	0.00040	222.2	191.3	0.00019	-0.00021
5	-0.81	-0.00009	23.90	0.00073	231.2	183.4	0.00035	-0.00040
6	-0.56	-0.00018	32.10	0.00115	240.2	175.9	0.00055	-0.00064
7	-0.02	-0.00030	39.91	0.00168	249.0	169.2	0.00079	-0.00094
8	0.53	-0.00045	47.75	0.00228	258.1	162.6	0.00108	-0.00130
9	0.52	-0.00062	56.04	0.00297	267.6	155.5	0.00140	-0.00171
10	0.42	-0.00084	64.89	0.00377	277.8	148.0	0.00178	-0.00220
11	0.79	-0.00109	72.63	0.00465	287.4	142.1	0.00219	-0.00274
12	1.11	-0.00136	79.82	0.00563	296.6	136.9	0.00266	-0.00334
13	1.13	-0.00167	86.56	0.00669	305.3	132.2	0.00315	-0.00399
14	0.63	-0.00201	92.25	0.00784	312.9	128.4	0.00370	-0.00470
15	-0.30	-0.00237	97.18	0.00908	319.7	125.3	0.00428	-0.00547
16	0.14	-0.00276	102.82	0.01040	328.0	122.3	0.00491	-0.00629
17	0.04	-0.00315	108.92	0.01185	336.5	118.7	0.00559	-0.00717
18	0.22	-0.00356	114.42	0.01325	344.7	115.8	0.00625	-0.00803
19	0.42	-0.00397	119.46	0.01486	352.4	113.5	0.00701	-0.00900
20	0.28	-0.00439	124.41	0.01658	359.9	111.1	0.00782	-0.01002
21	-0.17	-0.00482	129.11	0.01837	367.1	108.9	0.00867	-0.01108
22	-0.16	-0.00527	133.44	0.02021	374.1	107.2	0.00953	-0.01217
23	-0.76	-0.00573	137.99	0.02220	381.1	105.1	0.01047	-0.01333
24	-0.80	-0.00619	142.34	0.02427	388.1	103.4	0.01144	-0.01454
25	-0.63	-0.00664	146.57	0.02642	395.1	102.0	0.01246	-0.01578
26	-0.92	-0.00709	149.87	0.02872	400.9	101.1	0.01354	-0.01708
27	-1.69	-0.00752	153.52	0.03103	406.8	99.7	0.01463	-0.01839
28	-1.55	-0.00794	157.06	0.03339	413.0	98.9	0.01574	-0.01971
29	-1.62	-0.00835	160.49	0.03588	419.0	98.0	0.01691	-0.02109
30	-1.01	-0.00874	163.93	0.03835	425.3	97.4	0.01808	-0.02245
31	-1.03	-0.00912	166.68	0.04106	430.5	97.1	0.01936	-0.02392
32	-1.36	-0.00949	168.85	0.04381	434.8	97.2	0.02066	-0.02540
33	-1.95	-0.00983	170.83	0.04669	438.8	97.1	0.02203	-0.02694
34	-2.16	-0.01012	172.22	0.04969	442.1	97.7	0.02345	-0.02851
35	-3.01	-0.01036	173.06	0.05270	444.4	98.3	0.02488	-0.03006
36	-4.46	-0.01058	172.60	0.05594	445.0	99.7	0.02643	-0.03171
37	-6.46	-0.01078	171.02	0.05917	443.9	101.8	0.02798	-0.03336
38	-7.39	-0.01095	169.64	0.06250	443.4	104.0	0.02957	-0.03505
39	-8.13	-0.01107	169.39	0.06571	444.0	105.1	0.03112	-0.03666
40	-9.08	-0.01119	169.37	0.06914	444.7	105.8	0.03278	-0.03837

Test Name: 85\_07/19/91

Material: EPK  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko OC  
OCR-4

Control: Deform  
Loading: Static  
Height: Variable  
Beta: 45

Length: 12.046 (cm)  
Volume: 169.437 (cm<sup>3</sup>)  
Inner\_radius: 2.546 (cm)

Area: 14.051 (cm<sup>2</sup>)  
ECP: 206.700 (kPa)  
Outter\_radius: 3.310 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	378.95	0.00000	172.25	0.000	0.00000
2	-0.13	-0.00002	378.95	0.00000	172.19	0.103	0.00019
3	-0.42	-0.00012	378.95	0.00000	172.01	0.398	0.00076
4	-0.81	-0.00042	378.95	0.00000	171.71	0.814	0.00175
5	-0.89	-0.00106	378.95	0.00000	171.25	1.202	0.00307
6	-0.84	-0.00206	378.95	0.00000	170.52	1.580	0.00484
7	-0.72	-0.00341	378.95	0.00000	169.53	1.939	0.00656
8	-0.52	-0.00506	378.95	0.00000	168.37	2.277	0.00961
9	-0.27	-0.00703	378.95	0.00000	166.87	2.623	0.01259
10	-0.36	-0.00930	378.95	0.00000	165.32	2.956	0.01588
11	-0.20	-0.01188	378.95	0.00000	163.55	3.274	0.01937
12	-0.47	-0.01474	378.95	0.00000	161.43	3.570	0.02329
13	-0.06	-0.01779	378.95	0.00000	159.29	3.882	0.02731
14	0.96	-0.02114	378.95	0.00000	156.57	4.194	0.03244
15	1.69	-0.02475	378.95	0.00000	153.97	4.487	0.03610
16	1.81	-0.02869	378.95	0.00000	151.08	4.776	0.04092
17	1.73	-0.03290	378.95	0.00000	148.15	5.055	0.04688
18	1.56	-0.03732	378.95	0.00000	145.12	5.310	0.05338
19	1.38	-0.04198	378.95	0.00000	142.09	5.578	0.05982
20	1.15	-0.04670	378.95	0.00000	138.99	5.790	0.06660
21	0.66	-0.05126	378.95	0.00000	136.08	5.959	0.07419
22	0.17	-0.05493	378.95	0.00000	133.06	6.046	0.07962
23	-0.71	-0.05919	378.95	0.00000	130.35	6.274	0.08846
24	-1.60	-0.06333	378.95	0.00000	127.54	6.428	0.09742
25	-2.36	-0.06737	378.95	0.00000	124.82	6.583	0.10609
26	-2.98	-0.07127	378.95	0.00000	122.18	6.741	0.11561
27	-3.46	-0.07524	378.95	0.00000	119.53	6.914	0.12563
28	-3.81	-0.07929	378.95	0.00000	116.83	7.052	0.13606
29	-4.57	-0.08351	378.95	0.00000	114.25	7.173	0.14691
30	-5.39	-0.08727	378.95	0.00000	111.93	7.261	0.15809
31	-6.33	-0.09052	378.95	0.00000	109.54	7.325	0.16963
32	-7.48	-0.09280	378.95	0.00000	107.40	7.333	0.18168
33	-8.62	-0.09428	378.95	0.00000	105.44	7.326	0.19432
34	-9.90	-0.09532	378.95	0.00000	103.59	7.282	0.20730
35	-11.25	-0.09592	378.95	0.00000	101.90	7.252	0.22004
36	-12.11	-0.09641	378.95	0.00000	100.43	7.245	0.23342
37	-12.85	-0.09675	378.95	0.00000	99.29	7.220	0.24757
38	-13.50	-0.09702	378.95	0.00000	98.23	7.190	0.26194
39	-14.52	-0.09733	378.95	0.00000	97.27	7.133	0.27714
40	-15.51	-0.09774	378.95	0.00000	96.22	7.077	0.29195

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	206.7	206.7	0.00000	0.00000
2	-0.09	-0.00000	2.47	0.00005	209.2	204.2	0.00002	-0.00002
3	-0.30	-0.00001	9.56	0.00019	216.4	197.2	0.00009	-0.00010
4	-0.57	-0.00003	19.55	0.00043	226.5	187.4	0.00021	-0.00022
5	-0.64	-0.00009	28.85	0.00075	236.2	178.5	0.00036	-0.00040
6	-0.60	-0.00017	37.95	0.00118	246.1	170.2	0.00056	-0.00065
7	-0.51	-0.00028	46.58	0.00160	255.7	162.6	0.00076	-0.00090
8	-0.37	-0.00042	54.70	0.00235	265.1	155.7	0.00111	-0.00132
9	-0.20	-0.00058	63.02	0.00308	275.0	149.0	0.00145	-0.00175
10	-0.25	-0.00077	71.05	0.00388	284.5	142.5	0.00183	-0.00222
11	-0.14	-0.00099	78.71	0.00473	294.0	136.6	0.00223	-0.00272
12	-0.34	-0.00122	85.87	0.00568	303.2	131.5	0.00268	-0.00329
13	-0.04	-0.00148	93.40	0.00666	313.0	126.2	0.00314	-0.00388
14	0.69	-0.00175	100.95	0.00791	323.7	121.8	0.00373	-0.00461
15	1.21	-0.00205	108.06	0.00880	333.6	117.5	0.00415	-0.00517
16	1.29	-0.00238	115.07	0.00997	343.6	113.4	0.00470	-0.00589
17	1.23	-0.00273	121.85	0.01141	353.3	109.6	0.00538	-0.00674
18	1.11	-0.00309	128.08	0.01299	362.5	106.3	0.00612	-0.00767
19	0.99	-0.00348	134.61	0.01455	372.0	102.7	0.00686	-0.00860
20	0.82	-0.00387	139.81	0.01619	380.2	100.6	0.00763	-0.00956
21	0.47	-0.00425	143.98	0.01802	387.1	99.1	0.00850	-0.01062
22	0.12	-0.00455	146.15	0.01933	392.1	99.8	0.00911	-0.01139
23	-0.51	-0.00490	151.73	0.02147	400.1	96.6	0.01012	-0.01257
24	-1.14	-0.00524	155.53	0.02363	406.4	95.3	0.01114	-0.01376
25	-1.69	-0.00558	159.36	0.02572	412.6	93.9	0.01213	-0.01492
26	-2.13	-0.00590	163.28	0.02801	419.0	92.4	0.01321	-0.01616
27	-2.47	-0.00623	167.54	0.03043	425.7	90.6	0.01436	-0.01747
28	-2.73	-0.00656	170.98	0.03294	431.7	89.8	0.01555	-0.01883
29	-3.27	-0.00691	174.00	0.03554	437.1	89.0	0.01678	-0.02024
30	-3.86	-0.00722	176.22	0.03823	441.3	88.9	0.01806	-0.02167
31	-4.53	-0.00749	177.83	0.04101	445.0	89.3	0.01939	-0.02313
32	-5.36	-0.00767	178.08	0.04391	447.0	90.8	0.02078	-0.02461
33	-6.17	-0.00780	177.94	0.04695	448.4	92.5	0.02224	-0.02614
34	-7.09	-0.00788	176.90	0.05008	448.7	94.9	0.02376	-0.02770
35	-8.06	-0.00793	176.18	0.05316	449.3	96.8	0.02525	-0.02922
36	-8.67	-0.00797	176.02	0.05639	450.3	98.1	0.02683	-0.03081
37	-9.21	-0.00800	175.43	0.05980	450.5	99.6	0.02850	-0.03250
38	-9.67	-0.00802	174.70	0.06327	450.6	101.1	0.03020	-0.03421
39	-10.40	-0.00805	173.33	0.06694	449.9	103.1	0.03200	-0.03602
40	-11.11	-0.00808	171.98	0.07051	449.2	105.1	0.03375	-0.03779

**APPENDIX IX**  
**TESTS LISTED IN TABLE 2.9**

Test Name: 1\_05/01/90

Material: H121  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 0  
  
Length: 13.325 (cm)  
Volume: 259.471 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 19.453 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.556 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	37.55	0.00165	482.30	0.00000	140.82	0.000	0.00000
3	81.38	0.00419	482.30	0.00000	144.77	0.000	0.00000
4	126.66	0.00698	482.30	0.00000	149.26	0.000	0.00000
5	171.09	0.01011	482.30	0.00000	153.95	0.000	0.00000
6	214.76	0.01349	482.30	0.00000	158.72	0.000	0.00000
7	256.82	0.01737	482.30	0.00000	163.49	0.000	0.00000
8	297.33	0.02146	482.30	0.00000	168.28	0.000	0.00000
9	336.84	0.02601	482.30	0.00000	173.08	0.000	0.00000
10	376.79	0.03068	482.30	0.00000	177.89	0.000	0.00000
11	416.60	0.03602	482.30	0.00000	182.75	0.000	0.00000
12	456.50	0.04186	482.30	0.00000	187.53	0.000	0.00000
13	495.31	0.04850	482.30	0.00000	192.22	0.000	0.00000
14	532.90	0.05591	482.30	0.00000	196.85	0.000	0.00000
15	569.86	0.06434	482.30	0.00000	201.37	0.000	0.00000
16	606.26	0.07374	482.30	0.00000	205.80	0.000	0.00000
17	641.79	0.08451	482.30	0.00000	210.23	0.000	0.00000
18	677.13	0.09815	482.30	0.00000	214.93	0.000	0.00000
19	713.75	0.11730	482.30	0.00000	220.52	0.000	0.00000
20	749.51	0.14493	482.30	0.00000	227.11	0.000	0.00000
21	782.99	0.17887	482.30	0.00000	233.87	0.000	0.00000
22	815.01	0.21900	482.30	0.00000	240.36	0.000	0.00000
23	846.79	0.27053	482.30	0.00000	246.09	0.000	0.00000
24	877.41	0.32164	482.30	0.00000	250.54	0.000	0.00000
25	906.64	0.37610	482.30	0.00000	253.72	0.000	0.00000
26	933.97	0.42827	482.30	0.00000	255.70	0.000	0.00000
27	960.57	0.47994	482.30	0.00000	256.85	0.000	0.00000
28	985.14	0.53063	482.30	0.00000	257.36	0.000	0.00000
29	1007.89	0.57765	482.30	0.00000	257.39	0.000	0.00000
30	1029.61	0.62101	482.30	0.00000	257.05	0.000	0.00000
31	1049.25	0.66312	482.30	0.00000	256.46	0.000	0.00000
32	1067.07	0.70241	482.30	0.00000	255.71	0.000	0.00000
33	1083.98	0.73655	482.30	0.00000	254.86	0.000	0.00000
34	1099.57	0.77238	482.30	0.00000	253.94	0.000	0.00000
35	1112.52	0.80301	482.30	0.00000	252.87	0.000	0.00000
36	1122.16	0.82968	482.30	0.00000	251.80	0.000	0.00000
37	1129.67	0.85109	482.30	0.00000	250.98	0.000	0.00000
38	1135.04	0.86905	482.30	0.00000	250.38	0.000	0.00000
39	1138.27	0.88297	482.30	0.00000	250.03	0.000	0.00000
40	1139.35	0.88815	482.30	0.00000	249.91	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	19.28	0.00012	0.00	0.00000	360.8	341.5	0.00012	-0.00006
3	41.76	0.00031	0.00	0.00000	379.3	337.5	0.00031	-0.00016
4	64.99	0.00052	0.00	0.00000	398.0	333.0	0.00052	-0.00026
5	87.77	0.00076	0.00	0.00000	416.1	328.3	0.00076	-0.00038
6	110.14	0.00101	0.00	0.00000	433.7	323.6	0.00101	-0.00051
7	131.67	0.00130	0.00	0.00000	450.5	318.8	0.00130	-0.00065
8	152.40	0.00161	0.00	0.00000	466.4	314.0	0.00161	-0.00081
9	172.59	0.00195	0.00	0.00000	481.8	309.2	0.00195	-0.00098
10	192.99	0.00230	0.00	0.00000	497.4	304.4	0.00230	-0.00115
11	213.30	0.00271	0.00	0.00000	512.8	299.5	0.00271	-0.00135
12	233.63	0.00315	0.00	0.00000	528.4	294.8	0.00315	-0.00157
13	253.36	0.00365	0.00	0.00000	543.4	290.1	0.00365	-0.00182
14	272.44	0.00420	0.00	0.00000	557.9	285.4	0.00420	-0.00210
15	291.14	0.00484	0.00	0.00000	572.1	280.9	0.00484	-0.00242
16	309.52	0.00555	0.00	0.00000	586.0	276.5	0.00555	-0.00277
17	327.39	0.00636	0.00	0.00000	599.5	272.1	0.00636	-0.00318
18	345.07	0.00739	0.00	0.00000	612.4	267.4	0.00739	-0.00370
19	363.20	0.00884	0.00	0.00000	625.0	261.8	0.00884	-0.00442
20	380.60	0.01094	0.00	0.00000	635.8	255.2	0.01094	-0.00547
21	396.58	0.01351	0.00	0.00000	645.0	248.4	0.01351	-0.00676
22	411.54	0.01657	0.00	0.00000	653.5	241.9	0.01657	-0.00829
23	425.90	0.02051	0.00	0.00000	662.1	236.2	0.02051	-0.01026
24	439.58	0.02443	0.00	0.00000	671.3	231.8	0.02443	-0.01222
25	452.32	0.02863	0.00	0.00000	680.9	228.6	0.02863	-0.01432
26	464.07	0.03267	0.00	0.00000	690.7	226.6	0.03267	-0.01633
27	475.38	0.03668	0.00	0.00000	700.8	225.4	0.03668	-0.01834
28	485.62	0.04064	0.00	0.00000	710.6	224.9	0.04064	-0.02032
29	495.00	0.04432	0.00	0.00000	719.9	224.9	0.04432	-0.02216
30	503.95	0.04773	0.00	0.00000	729.2	225.2	0.04773	-0.02386
31	511.86	0.05105	0.00	0.00000	737.7	225.8	0.05105	-0.02552
32	518.94	0.05415	0.00	0.00000	745.5	226.6	0.05415	-0.02708
33	525.73	0.05686	0.00	0.00000	753.2	227.4	0.05686	-0.02843
34	531.78	0.05971	0.00	0.00000	760.1	228.4	0.05971	-0.02986
35	536.73	0.06216	0.00	0.00000	766.2	229.4	0.06216	-0.03108
36	540.23	0.06429	0.00	0.00000	770.7	230.5	0.06429	-0.03214
37	542.91	0.06600	0.00	0.00000	774.2	231.3	0.06600	-0.03300
38	544.71	0.06744	0.00	0.00000	776.6	231.9	0.06744	-0.03372
39	545.65	0.06856	0.00	0.00000	777.9	232.3	0.06856	-0.03428
40	545.94	0.06898	0.00	0.00000	778.3	232.4	0.06898	-0.03449



Test Name: 2\_06/01/90

Material: H121  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 30

Length: 13.505 (cm)  
Volume: 262.843 (cm<sup>3</sup>)  
Inner\_radius: 2.539 (cm)

Area: 19.442 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.555 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	16.83	-0.00010	482.30	0.00000	138.57	0.484	0.00088
3	34.16	0.00006	482.30	0.00000	139.61	0.991	0.00210
4	52.12	0.00017	482.30	0.00000	140.96	1.502	0.00288
5	71.87	0.00022	482.30	0.00000	142.76	2.025	0.00363
6	89.93	0.00026	482.30	0.00000	144.95	2.531	0.00464
7	108.87	0.00046	482.30	0.00000	147.58	3.033	0.00682
8	128.60	0.00061	482.30	0.00000	150.59	3.529	0.00932
9	148.76	0.00068	482.30	0.00000	153.93	4.037	0.01179
10	169.48	0.00099	482.30	0.00000	157.67	4.579	0.01517
11	190.26	0.00112	482.30	0.00000	161.82	5.062	0.01955
12	210.53	0.00128	482.30	0.00000	165.95	5.543	0.02401
13	229.76	0.00154	482.30	0.00000	170.13	5.996	0.03009
14	248.28	0.00190	482.30	0.00000	174.44	6.469	0.03631
15	267.50	0.00221	482.30	0.00000	178.95	6.909	0.04249
16	286.53	0.00253	482.30	0.00000	183.57	7.359	0.05168
17	304.61	0.00310	482.30	0.00000	188.24	7.768	0.06173
18	321.49	0.00363	482.30	0.00000	192.79	8.187	0.07435
19	338.27	0.00439	482.30	0.00000	197.30	8.619	0.08867
20	354.74	0.00540	482.30	0.00000	201.72	9.069	0.10524
21	370.77	0.00651	482.30	0.00000	205.72	9.526	0.12515
22	386.18	0.00781	482.30	0.00000	209.04	9.951	0.14863
23	401.10	0.00926	482.30	0.00000	211.54	10.399	0.17258
24	414.85	0.01106	482.30	0.00000	213.02	10.805	0.19689
25	427.93	0.01267	482.30	0.00000	213.84	11.167	0.22139
26	440.52	0.01443	482.30	0.00000	213.76	11.530	0.24850
27	452.83	0.01651	482.30	0.00000	213.09	11.861	0.27511
28	464.72	0.01820	482.30	0.00000	212.17	12.167	0.30141
29	475.76	0.02012	482.30	0.00000	210.68	12.459	0.32735
30	485.97	0.02209	482.30	0.00000	208.95	12.754	0.35276
31	495.04	0.02366	482.30	0.00000	207.21	13.035	0.37625
32	503.61	0.02535	482.30	0.00000	205.46	13.302	0.39823
33	511.41	0.02699	482.30	0.00000	203.71	13.552	0.41865
34	518.46	0.02825	482.30	0.00000	202.10	13.769	0.43824
35	525.02	0.02977	482.30	0.00000	200.69	13.954	0.45664
36	530.44	0.03105	482.30	0.00000	199.34	14.112	0.47168
37	534.67	0.03228	482.30	0.00000	198.16	14.234	0.48340
38	537.69	0.03353	482.30	0.00000	197.03	14.322	0.49179
39	539.50	0.03531	482.30	0.00000	196.32	14.375	0.49683
40	540.11	0.03659	482.30	0.00000	196.07	14.392	0.49851

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	8.65	-0.00001	8.01	0.00020	357.2	338.9	0.00010	-0.00010
3	17.55	0.00000	16.40	0.00048	370.1	332.9	0.00024	-0.00024
4	26.77	0.00001	24.87	0.00066	383.0	326.5	0.00033	-0.00032
5	36.92	0.00002	33.53	0.00083	396.3	319.7	0.00042	-0.00041
6	46.19	0.00002	41.90	0.00106	408.3	312.6	0.00053	-0.00052
7	55.92	0.00003	50.21	0.00155	420.1	305.2	0.00079	-0.00077
8	66.05	0.00005	58.42	0.00212	431.9	297.6	0.00107	-0.00105
9	76.41	0.00005	66.84	0.00268	443.6	289.6	0.00136	-0.00133
10	87.05	0.00007	75.80	0.00345	455.6	280.7	0.00175	-0.00171
11	97.72	0.00008	83.80	0.00445	466.3	272.3	0.00225	-0.00221
12	108.13	0.00009	91.76	0.00547	476.9	263.9	0.00276	-0.00271
13	118.01	0.00011	99.26	0.00685	486.6	255.7	0.00346	-0.00340
14	127.51	0.00014	107.08	0.00827	496.2	247.0	0.00417	-0.00410
15	137.38	0.00016	114.36	0.00968	505.4	238.6	0.00488	-0.00480
16	147.15	0.00019	121.81	0.01177	514.6	230.0	0.00593	-0.00584
17	156.43	0.00023	128.57	0.01406	522.8	221.8	0.00709	-0.00698
18	165.09	0.00027	135.50	0.01694	530.7	213.4	0.00854	-0.00840
19	173.70	0.00032	142.63	0.02020	538.8	204.9	0.01019	-0.01002
20	182.14	0.00040	150.06	0.02398	547.2	196.1	0.01209	-0.01189
21	190.36	0.00048	157.61	0.02852	555.9	187.6	0.01439	-0.01414
22	198.25	0.00058	164.62	0.03388	564.5	180.2	0.01709	-0.01680
23	205.89	0.00069	171.99	0.03934	574.1	173.3	0.01985	-0.01951
24	212.92	0.00082	178.67	0.04489	583.7	167.8	0.02266	-0.02225
25	219.60	0.00094	184.64	0.05049	593.1	163.4	0.02549	-0.02502
26	226.03	0.00107	190.59	0.05668	603.1	160.0	0.02862	-0.02809
27	232.32	0.00122	196.02	0.06277	613.2	157.5	0.03170	-0.03109
28	238.39	0.00135	201.03	0.06878	623.0	155.6	0.03474	-0.03407
29	244.02	0.00149	205.81	0.07471	632.9	154.4	0.03775	-0.03700
30	249.21	0.00164	210.64	0.08053	642.7	153.2	0.04069	-0.03988
31	253.84	0.00175	215.24	0.08591	651.9	152.1	0.04341	-0.04254
32	258.20	0.00188	219.62	0.09095	660.7	151.2	0.04596	-0.04502
33	262.17	0.00200	223.70	0.09563	668.9	150.4	0.04834	-0.04734
34	265.75	0.00209	227.26	0.10011	676.3	149.8	0.05061	-0.04956
35	269.09	0.00221	230.28	0.10434	682.9	149.5	0.05275	-0.05164
36	271.84	0.00230	232.84	0.10779	688.5	149.3	0.05450	-0.05335
37	273.98	0.00239	234.83	0.11048	693.0	149.3	0.05587	-0.05467
38	275.50	0.00249	236.24	0.11241	696.5	149.6	0.05686	-0.05562
39	276.40	0.00262	237.07	0.11359	698.6	149.8	0.05748	-0.05617
40	276.68	0.00271	237.32	0.11399	699.3	149.9	0.05771	-0.05635

Test Name: 3\_05/03/90

Material: H121  
 Shape: Uniform  
 a/l: 0  
 Angle:  
 Consol.: Ko NC  
 345 kPa

Control: Stress  
 Loading: Static  
 Height: Variable  
 Beta: 45

Length: 13.459 (cm)  
 Volume: 260.711 (cm<sup>3</sup>)  
 Inner\_radius: 2.533 (cm)

Area: 19.350 (cm<sup>2</sup>)  
 ECP: 344.500 (kPa)  
 Outter\_radius: 3.547 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-0.54	-0.00007	482.30	0.00000	137.52	0.415	0.00049
3	-0.16	-0.00015	482.30	0.00000	137.35	1.029	0.00137
4	0.08	-0.00043	482.30	0.00000	137.44	1.687	0.00268
5	1.15	-0.00124	482.30	0.00000	138.09	2.329	0.00469
6	2.41	-0.00275	482.30	0.00000	139.29	2.944	0.00730
7	2.07	-0.00488	482.30	0.00000	140.98	3.549	0.01046
8	3.05	-0.00750	482.30	0.00000	142.98	4.141	0.01425
9	2.88	-0.01061	482.30	0.00000	145.37	4.710	0.01871
10	3.04	-0.01421	482.30	0.00000	148.13	5.298	0.02417
11	3.23	-0.01842	482.30	0.00000	151.25	5.870	0.03071
12	3.24	-0.02301	482.30	0.00000	154.53	6.397	0.03843
13	3.24	-0.02784	482.30	0.00000	157.77	6.884	0.04724
14	2.94	-0.03251	482.30	0.00000	160.59	7.303	0.05594
15	3.00	-0.03769	482.30	0.00000	163.32	7.791	0.06671
16	2.59	-0.04389	482.30	0.00000	166.28	8.276	0.08003
17	2.11	-0.05050	482.30	0.00000	168.93	8.752	0.09564
18	1.21	-0.05801	482.30	0.00000	171.27	9.254	0.11473
19	0.71	-0.06655	482.30	0.00000	173.08	9.765	0.13793
20	0.08	-0.07450	482.30	0.00000	174.33	10.206	0.16094
21	0.05	-0.08151	482.30	0.00000	174.85	10.583	0.18273
22	0.31	-0.09026	482.30	0.00000	173.87	11.116	0.21250
23	-0.03	-0.09969	482.30	0.00000	172.23	11.637	0.24686
24	-0.47	-0.10892	482.30	0.00000	169.75	12.119	0.28185
25	-0.76	-0.11713	482.30	0.00000	166.87	12.551	0.31634
26	-0.97	-0.12469	482.30	0.00000	163.76	12.976	0.35028
27	-1.28	-0.13199	482.30	0.00000	160.13	13.400	0.38420
28	-1.71	-0.13823	482.30	0.00000	156.79	13.746	0.41605
29	-2.07	-0.14373	482.30	0.00000	153.41	14.071	0.44703
30	-2.39	-0.14840	482.30	0.00000	150.42	14.356	0.47603
31	-2.94	-0.15187	482.30	0.00000	147.97	14.576	0.50227
32	-3.90	-0.15503	482.30	0.00000	145.35	14.811	0.53036
33	-5.79	-0.15749	482.30	0.00000	142.84	14.973	0.56016
34	-8.07	-0.15883	482.30	0.00000	140.57	15.142	0.59183
35	-10.94	-0.15885	482.30	0.00000	138.11	15.260	0.63132
36	-14.11	-0.15602	482.30	0.00000	135.89	15.331	0.67078
37	-16.73	-0.15323	482.30	0.00000	134.02	15.321	0.70829
38	-18.60	-0.14927	482.30	0.00000	132.32	15.322	0.75009
39	-19.72	-0.14551	482.30	0.00000	131.14	15.331	0.78216
40	-20.10	-0.14413	482.30	0.00000	130.75	15.335	0.79329

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-0.28	-0.00001	6.93	0.00011	351.6	337.7	0.00006	-0.00006
3	-0.08	-0.00001	17.17	0.00031	362.1	327.7	0.00015	-0.00016
4	0.04	-0.00003	28.13	0.00061	373.0	316.8	0.00030	-0.00031
5	0.59	-0.00009	38.84	0.00107	383.3	305.7	0.00052	-0.00056
6	1.25	-0.00020	49.11	0.00166	392.7	294.5	0.00079	-0.00090
7	1.07	-0.00036	59.22	0.00238	401.1	282.6	0.00113	-0.00131
8	1.57	-0.00056	69.11	0.00325	409.2	271.0	0.00154	-0.00181
9	1.49	-0.00079	78.64	0.00426	416.3	259.0	0.00201	-0.00241
10	1.57	-0.00106	88.48	0.00550	423.4	246.5	0.00260	-0.00313
11	1.67	-0.00137	98.09	0.00699	430.0	233.8	0.00330	-0.00398
12	1.67	-0.00171	106.95	0.00874	435.6	221.7	0.00413	-0.00498
13	1.68	-0.00207	115.15	0.01073	440.5	210.2	0.00507	-0.00610
14	1.52	-0.00241	122.23	0.01270	444.7	200.2	0.00600	-0.00721
15	1.55	-0.00280	130.47	0.01514	450.2	189.3	0.00716	-0.00856
16	1.34	-0.00326	138.68	0.01815	455.4	178.0	0.00859	-0.01021
17	1.09	-0.00375	146.78	0.02168	460.7	167.1	0.01026	-0.01213
18	0.63	-0.00430	155.31	0.02598	466.7	156.0	0.01231	-0.01446
19	0.37	-0.00493	164.05	0.03121	473.5	145.4	0.01480	-0.01727
20	0.04	-0.00552	171.60	0.03638	479.6	136.4	0.01728	-0.02004
21	0.03	-0.00604	178.09	0.04128	485.6	129.4	0.01962	-0.02264
22	0.16	-0.00668	187.24	0.04795	495.7	121.3	0.02282	-0.02617
23	-0.02	-0.00738	196.21	0.05565	506.3	113.8	0.02653	-0.03022
24	-0.24	-0.00806	204.55	0.06348	517.0	107.9	0.03029	-0.03432
25	-0.39	-0.00866	212.05	0.07118	527.3	103.2	0.03401	-0.03834
26	-0.51	-0.00922	219.40	0.07875	537.7	98.9	0.03767	-0.04228
27	-0.67	-0.00976	226.76	0.08631	548.6	95.1	0.04133	-0.04621
28	-0.89	-0.01022	232.76	0.09340	557.8	92.3	0.04477	-0.04988
29	-1.08	-0.01062	238.41	0.10029	566.8	89.9	0.04812	-0.05343
30	-1.25	-0.01097	243.37	0.10674	574.6	87.9	0.05126	-0.05674
31	-1.53	-0.01122	247.20	0.11258	580.8	86.4	0.05411	-0.05972
32	-2.04	-0.01145	251.27	0.11884	587.2	84.7	0.05717	-0.06290
33	-3.02	-0.01163	254.08	0.12548	592.0	83.9	0.06044	-0.06625
34	-4.21	-0.01173	257.00	0.13255	596.6	82.6	0.06393	-0.06979
35	-5.72	-0.01173	258.99	0.14140	600.3	82.3	0.06831	-0.07418
36	-7.37	-0.01152	260.12	0.15028	602.9	82.6	0.07276	-0.07852
37	-8.73	-0.01132	259.87	0.15873	603.8	84.0	0.07699	-0.08265
38	-9.71	-0.01103	259.77	0.16818	604.9	85.3	0.08174	-0.08725
39	-10.29	-0.01075	259.82	0.17544	605.9	86.1	0.08540	-0.09078
40	-10.48	-0.01065	259.84	0.17796	606.2	86.4	0.08668	-0.09200

Test Name: 5\_06/08/90

Material: H121  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 60

Length: 13.640 (cm)  
Volume: 265.605 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 19.453 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.556 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-10.09	0.00006	482.30	0.00000	137.38	0.271	-0.00015
3	-20.68	-0.00108	482.30	0.00000	136.57	0.567	0.00061
4	-32.07	-0.00147	482.30	0.00000	135.64	0.878	0.00037
5	-44.20	-0.00368	482.30	0.00000	134.57	1.189	0.00214
6	-55.77	-0.00476	482.30	0.00000	133.67	1.497	0.00258
7	-67.33	-0.00869	482.30	0.00000	133.31	1.808	0.00505
8	-78.94	-0.01401	482.30	0.00000	133.55	2.118	0.00734
9	-90.14	-0.02015	482.30	0.00000	134.10	2.421	0.00929
10	-101.24	-0.02858	482.30	0.00000	134.85	2.726	0.01221
11	-112.71	-0.03520	482.30	0.00000	135.81	3.026	0.01553
12	-124.08	-0.04512	482.30	0.00000	136.85	3.319	0.01960
13	-135.10	-0.05456	482.30	0.00000	138.06	3.595	0.02393
14	-145.64	-0.06547	482.30	0.00000	139.12	3.876	0.02933
15	-156.19	-0.07664	482.30	0.00000	140.28	4.151	0.03338
16	-166.30	-0.08858	482.30	0.00000	141.25	4.415	0.04068
17	-175.45	-0.10075	482.30	0.00000	142.20	4.672	0.04719
18	-184.24	-0.11166	482.30	0.00000	143.02	4.924	0.05340
19	-193.04	-0.12629	482.30	0.00000	143.49	5.166	0.06126
20	-202.09	-0.14054	482.30	0.00000	144.00	5.420	0.06960
21	-210.59	-0.15819	482.30	0.00000	144.14	5.682	0.07939
22	-218.66	-0.17622	482.30	0.00000	144.28	5.925	0.08885
23	-226.84	-0.19110	482.30	0.00000	144.20	6.150	0.09910
24	-234.40	-0.20752	482.30	0.00000	143.86	6.363	0.10963
25	-241.76	-0.22458	482.30	0.00000	143.34	6.557	0.11903
26	-248.49	-0.23990	482.30	0.00000	142.60	6.747	0.12999
27	-254.48	-0.25502	482.30	0.00000	141.68	6.922	0.14031
28	-260.36	-0.27105	482.30	0.00000	140.65	7.088	0.15041
29	-265.46	-0.28703	482.30	0.00000	139.50	7.245	0.16111
30	-270.07	-0.30066	482.30	0.00000	138.33	7.389	0.17044
31	-274.39	-0.31291	482.30	0.00000	137.16	7.521	0.18132
32	-278.26	-0.32486	482.30	0.00000	136.05	7.639	0.19071
33	-281.87	-0.33800	482.30	0.00000	134.86	7.730	0.19888
34	-285.13	-0.34773	482.30	0.00000	133.78	7.788	0.20809
35	-288.00	-0.35578	482.30	0.00000	132.86	7.844	0.21604
36	-290.35	-0.36508	482.30	0.00000	132.05	7.890	0.22501
37	-292.18	-0.37093	482.30	0.00000	131.47	7.926	0.23357
38	-293.50	-0.37644	482.30	0.00000	131.09	7.952	0.25112
39	-294.28	-0.38229	482.30	0.00000	130.90	7.967	0.27705
40	-294.55	-0.38531	482.30	0.00000	130.85	7.972	0.29136

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-5.18	0.00000	4.48	-0.00003	347.5	337.2	0.00002	-0.00002
3	-10.62	-0.00008	9.38	0.00014	351.2	329.6	0.00007	-0.00011
4	-16.47	-0.00011	14.53	0.00008	355.1	321.7	0.00006	-0.00012
5	-22.70	-0.00027	19.68	0.00048	359.1	313.7	0.00025	-0.00038
6	-28.64	-0.00035	24.79	0.00058	362.9	305.7	0.00030	-0.00048
7	-34.59	-0.00064	29.94	0.00114	366.3	297.1	0.00058	-0.00090
8	-40.57	-0.00103	35.09	0.00165	369.0	287.9	0.00087	-0.00139
9	-46.34	-0.00148	40.14	0.00209	371.4	278.7	0.00115	-0.00189
10	-52.09	-0.00209	45.25	0.00275	373.6	269.2	0.00156	-0.00261
11	-58.02	-0.00258	50.26	0.00349	375.5	259.4	0.00196	-0.00325
12	-63.91	-0.00330	55.18	0.00440	377.3	249.7	0.00249	-0.00414
13	-69.64	-0.00399	59.84	0.00536	378.7	240.2	0.00302	-0.00502
14	-75.13	-0.00479	64.58	0.00657	380.3	230.9	0.00367	-0.00606
15	-80.64	-0.00560	69.25	0.00746	381.8	221.6	0.00422	-0.00702
16	-85.93	-0.00647	73.76	0.00909	383.4	212.7	0.00503	-0.00827
17	-90.74	-0.00736	78.15	0.01053	385.1	204.4	0.00579	-0.00947
18	-95.36	-0.00815	82.46	0.01190	386.9	196.3	0.00649	-0.01057
19	-100.02	-0.00922	86.66	0.01363	388.9	188.7	0.00740	-0.01201
20	-104.82	-0.01025	91.07	0.01546	391.0	180.8	0.00834	-0.01346
21	-109.37	-0.01153	95.65	0.01760	393.7	173.3	0.00945	-0.01522
22	-113.71	-0.01284	99.93	0.01966	396.1	166.2	0.01055	-0.01697
23	-118.09	-0.01391	103.89	0.02189	398.5	159.6	0.01164	-0.01860
24	-122.17	-0.01510	107.68	0.02417	401.2	153.6	0.01279	-0.02034
25	-126.16	-0.01633	111.17	0.02619	403.7	148.1	0.01385	-0.02201
26	-129.81	-0.01744	114.57	0.02856	406.5	143.1	0.01500	-0.02372
27	-133.09	-0.01852	117.74	0.03078	409.3	138.8	0.01610	-0.02536
28	-136.32	-0.01968	120.78	0.03294	412.2	134.8	0.01719	-0.02703
29	-139.15	-0.02083	123.67	0.03522	415.1	131.3	0.01833	-0.02874
30	-141.70	-0.02180	126.30	0.03720	417.9	128.3	0.01932	-0.03022
31	-144.10	-0.02268	128.74	0.03953	420.6	125.6	0.02041	-0.03175
32	-146.26	-0.02354	130.93	0.04152	423.1	123.1	0.02137	-0.03314
33	-148.29	-0.02448	132.67	0.04324	425.3	121.3	0.02224	-0.03448
34	-150.11	-0.02517	133.80	0.04519	426.9	120.0	0.02315	-0.03574
35	-151.71	-0.02575	134.88	0.04688	428.3	118.8	0.02393	-0.03681
36	-153.05	-0.02641	135.81	0.04878	429.6	117.8	0.02482	-0.03802
37	-154.08	-0.02683	136.51	0.05060	430.5	117.0	0.02562	-0.03903
38	-154.83	-0.02722	137.04	0.05437	431.2	116.4	0.02719	-0.04080
39	-155.32	-0.02764	137.39	0.05995	431.6	115.9	0.02953	-0.04335
40	-155.49	-0.02786	137.52	0.06302	431.7	115.7	0.03084	-0.04477

Test Name: 4\_06/05/90

Material: H121  
Shape: Uniform  
a/l: 0  
Angle:  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Variable  
Beta: 90

Length: 13.487 (cm)  
Volume: 260.955 (cm<sup>3</sup>)  
Inner\_radius: 2.532 (cm)

Area: 19.328 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outter\_radius: 3.545 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	-17.71	-0.00161	482.30	0.00000	136.64	0.000	0.00000
3	-38.10	-0.00303	482.30	0.00000	134.67	0.000	0.00000
4	-59.38	-0.00475	482.30	0.00000	132.61	0.000	0.00000
5	-82.14	-0.01049	482.30	0.00000	131.00	0.000	0.00000
6	-104.21	-0.02144	482.30	0.00000	132.49	0.000	0.00000
7	-125.58	-0.03341	482.30	0.00000	134.34	0.000	0.00000
8	-147.10	-0.04670	482.30	0.00000	136.17	0.000	0.00000
9	-170.16	-0.06235	482.30	0.00000	137.89	0.000	0.00000
10	-191.00	-0.07948	482.30	0.00000	139.62	0.000	0.00000
11	-211.75	-0.09765	482.30	0.00000	141.25	0.000	0.00000
12	-235.34	-0.11913	482.30	0.00000	142.77	0.000	0.00000
13	-258.57	-0.14345	482.30	0.00000	144.09	0.000	0.00000
14	-279.29	-0.17054	482.30	0.00000	145.18	0.000	0.00000
15	-299.30	-0.20049	482.30	0.00000	145.96	0.000	0.00000
16	-317.91	-0.23222	482.30	0.00000	146.24	0.000	0.00000
17	-335.68	-0.26459	482.30	0.00000	145.72	0.000	0.00000
18	-352.37	-0.29963	482.30	0.00000	144.77	0.000	0.00000
19	-368.83	-0.33668	482.30	0.00000	143.66	0.000	0.00000
20	-384.75	-0.37440	482.30	0.00000	141.84	0.000	0.00000
21	-399.78	-0.41205	482.30	0.00000	139.50	0.000	0.00000
22	-413.90	-0.45005	482.30	0.00000	136.97	0.000	0.00000
23	-427.03	-0.48768	482.30	0.00000	134.41	0.000	0.00000
24	-439.48	-0.52452	482.30	0.00000	131.21	0.000	0.00000
25	-451.00	-0.56102	482.30	0.00000	128.07	0.000	0.00000
26	-461.63	-0.59631	482.30	0.00000	124.74	0.000	0.00000
27	-471.81	-0.63041	482.30	0.00000	121.55	0.000	0.00000
28	-481.53	-0.66323	482.30	0.00000	118.26	0.000	0.00000
29	-490.36	-0.69513	482.30	0.00000	115.27	0.000	0.00000
30	-498.17	-0.72944	482.30	0.00000	112.13	0.000	0.00000
31	-505.41	-0.76045	482.30	0.00000	109.48	0.000	0.00000
32	-511.91	-0.78833	482.30	0.00000	106.91	0.000	0.00000
33	-517.68	-0.81304	482.30	0.00000	104.47	0.000	0.00000
34	-522.69	-0.83453	482.30	0.00000	102.67	0.000	0.00000
35	-526.95	-0.85278	482.30	0.00000	101.17	0.000	0.00000
36	-530.44	-0.86775	482.30	0.00000	99.95	0.000	0.00000
37	-533.17	-0.87942	482.30	0.00000	98.99	0.000	0.00000
38	-535.12	-0.88777	482.30	0.00000	98.30	0.000	0.00000
39	-536.29	-0.89278	482.30	0.00000	97.89	0.000	0.00000
40	-536.67	-0.89445	482.30	0.00000	97.77	0.000	0.00000

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	-9.15	-0.00012	0.00	0.00000	345.7	336.5	0.00006	-0.00012
3	-19.69	-0.00022	0.00	0.00000	347.6	327.9	0.00011	-0.00022
4	-30.69	-0.00035	0.00	0.00000	349.7	319.0	0.00018	-0.00035
5	-42.47	-0.00078	0.00	0.00000	351.3	308.8	0.00039	-0.00078
6	-53.93	-0.00159	0.00	0.00000	349.8	295.9	0.00079	-0.00159
7	-65.05	-0.00247	0.00	0.00000	348.0	282.9	0.00124	-0.00247
8	-76.27	-0.00346	0.00	0.00000	346.1	269.9	0.00173	-0.00346
9	-88.33	-0.00461	0.00	0.00000	344.4	256.1	0.00231	-0.00461
10	-99.27	-0.00588	0.00	0.00000	342.7	243.4	0.00294	-0.00588
11	-110.20	-0.00721	0.00	0.00000	341.1	230.9	0.00361	-0.00721
12	-122.67	-0.00879	0.00	0.00000	339.5	216.9	0.00440	-0.00879
13	-135.02	-0.01058	0.00	0.00000	338.2	203.2	0.00529	-0.01058
14	-146.13	-0.01256	0.00	0.00000	337.1	191.0	0.00628	-0.01256
15	-156.95	-0.01476	0.00	0.00000	336.3	179.4	0.00738	-0.01476
16	-167.09	-0.01707	0.00	0.00000	336.1	169.0	0.00854	-0.01707
17	-176.85	-0.01943	0.00	0.00000	336.6	159.7	0.00971	-0.01943
18	-186.11	-0.02197	0.00	0.00000	337.5	151.4	0.01099	-0.02197
19	-195.33	-0.02466	0.00	0.00000	338.6	143.3	0.01233	-0.02466
20	-204.31	-0.02738	0.00	0.00000	340.5	136.1	0.01369	-0.02738
21	-212.87	-0.03009	0.00	0.00000	342.8	129.9	0.01505	-0.03009
22	-220.99	-0.03282	0.00	0.00000	345.3	124.3	0.01641	-0.03282
23	-228.62	-0.03552	0.00	0.00000	347.9	119.3	0.01776	-0.03552
24	-235.91	-0.03815	0.00	0.00000	351.1	115.2	0.01908	-0.03815
25	-242.72	-0.04075	0.00	0.00000	354.2	111.5	0.02038	-0.04075
26	-249.07	-0.04326	0.00	0.00000	357.6	108.5	0.02163	-0.04326
27	-255.18	-0.04568	0.00	0.00000	360.7	105.6	0.02284	-0.04568
28	-261.04	-0.04800	0.00	0.00000	364.0	103.0	0.02400	-0.04800
29	-266.42	-0.05025	0.00	0.00000	367.0	100.6	0.02513	-0.05025
30	-271.32	-0.05267	0.00	0.00000	370.2	98.8	0.02634	-0.05267
31	-275.86	-0.05485	0.00	0.00000	372.8	97.0	0.02742	-0.05485
32	-279.96	-0.05680	0.00	0.00000	375.4	95.4	0.02840	-0.05680
33	-283.60	-0.05853	0.00	0.00000	377.8	94.2	0.02927	-0.05853
34	-286.78	-0.06004	0.00	0.00000	379.6	92.8	0.03002	-0.06004
35	-289.49	-0.06131	0.00	0.00000	381.1	91.6	0.03065	-0.06131
36	-291.71	-0.06235	0.00	0.00000	382.3	90.6	0.03118	-0.06235
37	-293.45	-0.06317	0.00	0.00000	383.3	89.9	0.03158	-0.06317
38	-294.69	-0.06375	0.00	0.00000	384.0	89.3	0.03187	-0.06375
39	-295.44	-0.06409	0.00	0.00000	384.4	89.0	0.03205	-0.06409
40	-295.68	-0.06421	0.00	0.00000	384.5	88.8	0.03211	-0.06421



Test Name: 3f\_05/16/90

Material: H121  
Shape: Dogbone  
a/l: 0.183  
Angle: 0.0  
Consol.: Ko NC  
345 kPa

Control: Stress  
Loading: Static  
Height: Fixed  
Beta: 45

Length: 12.356 (cm)  
Volume: 172.927 (cm<sup>3</sup>)  
Inner\_radius: 2.540 (cm)

Area: 13.981 (cm<sup>2</sup>)  
ECP: 344.500 (kPa)  
Outer\_radius: 3.302 (cm)

	Axial Force (N)	Axial Deform. (cm)	Cell Pressure (kPa)	Volume Change (cm <sup>3</sup> )	Pore Pressure (kPa)	Torque (Nm)	Rotation (rad)
1	0.00	0.00000	482.30	0.00000	137.80	0.000	0.00000
2	2.67	-0.00004	482.30	0.00000	138.31	0.364	0.00053
3	6.20	-0.00007	482.30	0.00000	138.89	0.731	0.00126
4	13.03	-0.00006	482.30	0.00000	139.90	1.117	0.00228
5	22.23	-0.00003	482.30	0.00000	140.84	1.509	0.00345
6	32.08	-0.00003	482.30	0.00000	142.80	1.900	0.00508
7	42.40	-0.00005	482.30	0.00000	145.19	2.288	0.00696
8	53.57	-0.00007	482.30	0.00000	147.66	2.677	0.00907
9	65.10	-0.00009	482.30	0.00000	150.32	3.064	0.01165
10	76.85	-0.00010	482.30	0.00000	153.07	3.448	0.01452
11	88.48	-0.00009	482.30	0.00000	155.90	3.821	0.01762
12	99.88	-0.00005	482.30	0.00000	158.61	4.189	0.02116
13	110.70	0.00002	482.30	0.00000	161.51	4.558	0.02535
14	121.36	0.00008	482.30	0.00000	164.36	4.892	0.03009
15	131.78	0.00013	482.30	0.00000	166.88	5.205	0.03466
16	141.83	0.00015	482.30	0.00000	169.42	5.537	0.04058
17	151.65	0.00017	482.30	0.00000	172.02	5.883	0.04765
18	161.29	0.00023	482.30	0.00000	174.44	6.223	0.05560
19	170.05	0.00031	482.30	0.00000	176.50	6.553	0.06466
20	177.82	0.00039	482.30	0.00000	178.32	6.857	0.07429
21	184.67	0.00050	482.30	0.00000	179.79	7.150	0.08511
22	190.50	0.00061	482.30	0.00000	180.79	7.446	0.09772
23	195.21	0.00076	482.30	0.00000	181.45	7.740	0.11268
24	198.81	0.00094	482.30	0.00000	181.57	8.002	0.12807
25	201.48	0.00113	482.30	0.00000	181.52	8.271	0.14267
26	202.89	0.00132	482.30	0.00000	180.75	8.554	0.15943
27	203.01	0.00150	482.30	0.00000	179.54	8.810	0.17901
28	202.07	0.00166	482.30	0.00000	177.69	9.031	0.19775
29	199.97	0.00178	482.30	0.00000	175.92	9.222	0.21495
30	196.26	0.00188	482.30	0.00000	174.12	9.388	0.23040
31	191.56	0.00202	482.30	0.00000	172.37	9.536	0.24349
32	186.12	0.00220	482.30	0.00000	170.56	9.672	0.25560
33	180.11	0.00239	482.30	0.00000	168.49	9.794	0.26830
34	174.80	0.00253	482.30	0.00000	166.12	9.897	0.28260
35	170.30	0.00265	482.30	0.00000	163.70	9.985	0.29667
36	166.60	0.00274	482.30	0.00000	161.64	10.057	0.30828
37	163.72	0.00282	482.30	0.00000	159.74	10.113	0.32083
38	161.66	0.00287	482.30	0.00000	158.39	10.153	0.33033
39	160.42	0.00290	482.30	0.00000	157.57	10.177	0.33605
40	160.01	0.00291	482.30	0.00000	157.27	10.185	0.33829

	Axial Stress (kPa)	Axial Strain	Shear Stress (kPa)	Shear Strain	Sigma 1 (kPa)	Sigma 3 (kPa)	Eps. 1	Eps. 3
1	0.00	0.00000	0.00	0.00000	344.5	344.5	0.00000	0.00000
2	1.91	-0.00000	8.80	0.00013	353.8	336.1	0.00006	-0.00006
3	4.43	-0.00001	17.68	0.00030	363.4	327.8	0.00015	-0.00015
4	9.31	-0.00000	27.02	0.00054	374.5	319.6	0.00027	-0.00027
5	15.88	-0.00000	36.50	0.00082	386.7	312.0	0.00041	-0.00041
6	22.91	-0.00000	45.95	0.00121	398.3	303.6	0.00060	-0.00060
7	30.29	-0.00000	55.35	0.00165	409.6	294.9	0.00083	-0.00083
8	38.27	-0.00001	64.74	0.00216	421.3	286.3	0.00108	-0.00108
9	46.50	-0.00001	74.12	0.00277	432.9	277.6	0.00138	-0.00139
10	54.90	-0.00001	83.41	0.00345	444.5	268.9	0.00172	-0.00173
11	63.20	-0.00001	92.42	0.00419	455.7	260.3	0.00209	-0.00210
12	71.35	-0.00000	101.32	0.00503	466.8	252.0	0.00251	-0.00252
13	79.07	0.00000	110.24	0.00603	477.4	243.2	0.00301	-0.00301
14	86.68	0.00001	118.32	0.00715	487.3	235.3	0.00358	-0.00358
15	94.13	0.00001	125.89	0.00824	496.9	228.1	0.00412	-0.00412
16	101.31	0.00001	133.93	0.00965	506.7	220.3	0.00483	-0.00482
17	108.32	0.00001	142.29	0.01133	516.7	212.2	0.00567	-0.00566
18	115.21	0.00002	150.52	0.01322	526.6	204.3	0.00661	-0.00660
19	121.46	0.00003	158.50	0.01537	536.3	196.8	0.00769	-0.00768
20	127.01	0.00003	165.86	0.01766	545.1	189.9	0.00884	-0.00882
21	131.91	0.00004	172.94	0.02024	553.5	183.4	0.01013	-0.01011
22	136.07	0.00005	180.09	0.02323	562.1	177.0	0.01163	-0.01160
23	139.43	0.00006	187.21	0.02679	570.3	170.8	0.01341	-0.01338
24	142.00	0.00008	193.52	0.03045	577.9	165.6	0.01525	-0.01521
25	143.91	0.00009	200.03	0.03392	585.3	160.2	0.01698	-0.01694
26	144.91	0.00011	206.88	0.03791	593.2	154.8	0.01898	-0.01893
27	144.99	0.00012	213.07	0.04257	600.3	150.2	0.02131	-0.02125
28	144.32	0.00013	218.40	0.04702	606.8	146.8	0.02354	-0.02348
29	142.82	0.00014	223.01	0.05111	612.0	143.6	0.02559	-0.02552
30	140.17	0.00015	227.02	0.05479	615.9	140.7	0.02743	-0.02736
31	136.81	0.00016	230.61	0.05790	618.9	137.8	0.02899	-0.02891
32	132.92	0.00018	233.89	0.06078	621.3	135.0	0.03044	-0.03035
33	128.63	0.00019	236.83	0.06381	623.5	132.7	0.03195	-0.03185
34	124.84	0.00020	239.32	0.06721	625.9	131.3	0.03366	-0.03355
35	121.62	0.00021	241.44	0.07055	628.4	130.4	0.03533	-0.03522
36	118.98	0.00022	243.18	0.07331	630.5	129.8	0.03671	-0.03660
37	116.92	0.00023	244.53	0.07630	632.4	129.6	0.03821	-0.03809
38	115.45	0.00023	245.50	0.07856	633.8	129.4	0.03934	-0.03922
39	114.56	0.00024	246.08	0.07992	634.7	129.3	0.04002	-0.03990
40	114.27	0.00024	246.28	0.08045	635.0	129.3	0.04029	-0.04017